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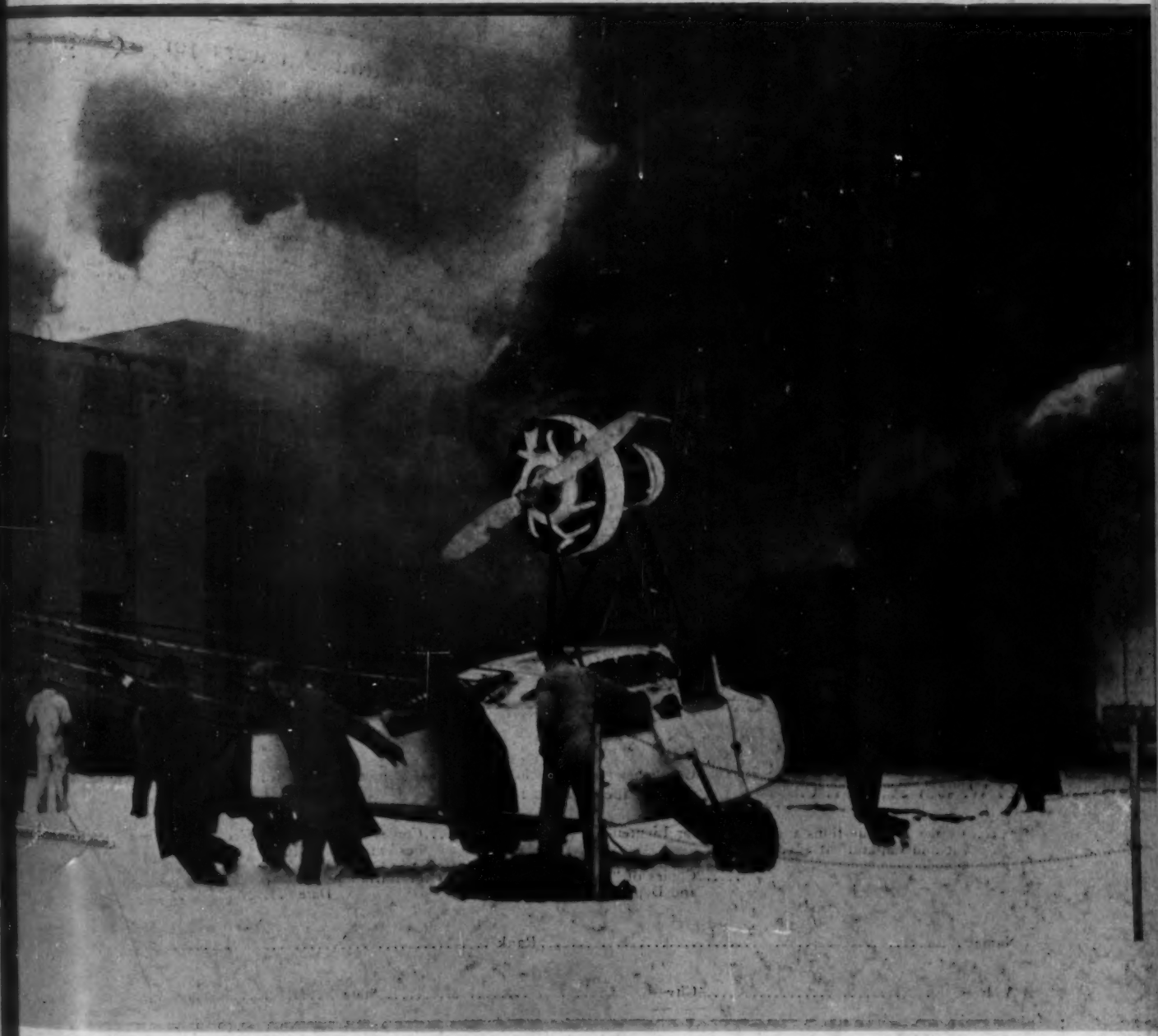
FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 86, No. 3 MARCH, 1933 Member A.B.C.-A.B.P.



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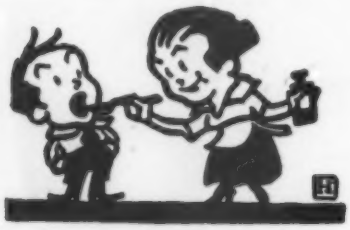

Good for What Ails Us

THERE'S an old saying, "The nearer an ailment approached a crisis the nearer it is to a cure."

● Well, people in general now have a better understanding of the underlying weaknesses in the country's banking and financial structure, and this in itself will go a long way toward making corrective measures permanently workable.

● A fire department without adequate manpower and equipment is in no different position than a bank without adequate funds, so far as a community's welfare is concerned. False economy programs and the apparent indifference of the people, are gradually bringing about a fire protection crisis throughout the country. Let's hope that we won't have to wait for a series of conflagrations to bring about the necessary remedy.

● Maybe a fire department holiday would be a good thing, hey wot?

The Publishers

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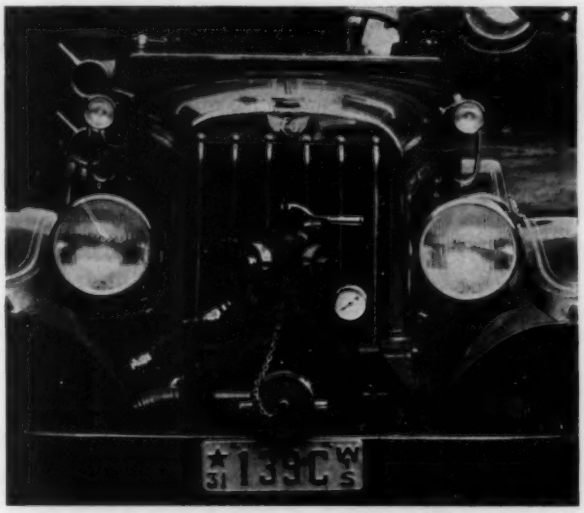

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(Signed) W. R. COLLIN, Chief
Bristol (Tenn.) Fire Dept.

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SPRINKLER WATCHMAN KEPT DOWN WATER LOSS AT GARDNER, MASS.

The practical value of connecting automatic sprinkler systems in buildings with the municipal fire department thru a Gamewell Master Type Fire Alarm Box has been demonstrated in one more city — Gardner, Mass.

Chief Robert M. Tappin of that city, informs us in his letter (right) that this connection, known as a SPRINKLER WATCHMAN, has kept water losses down to a minimum, by transmitting a prompt and accurate alarm *directly* to the fire department.

Every fire chief can reduce his fire losses by recommending SPRINKLER WATCHMEN to the sprinklered properties in his city. It turns the sprinkler system into an automatic fire alarm system — makes every sprinkler head a fire department nerve.

CITY OF GARDNER
HEADQUARTERS FIRE DEPARTMENT
3 LAKE STREET

ROBERT M. TAPPIN
CHIEF

GARDNER MASS. July 21, 1932

The Gamewell Company
Newton, Mass.

Gentlemen:

Upon my recommendation three years ago, ten business concerns here in Gardner each installed a Gamewell master type municipal fire alarm box connected to its sprinkler system so as to send an alarm direct to our municipal fire department in the event a sprinkler head should open for a fire or accidentally.

These sprinkler alarm connections which you call the "Sprinkler Watchman", have been very satisfactory. On one occasion we received an alarm from the master fire alarm box at the Gardner News Building where there was a water flow, caused by a freeze-up in the sprinkler system. Another alarm was received from the "Sprinkler Watchman" at the Gardner Trust Building, which operated when excessive heat in the boiler room melted a sprinkler head. In both cases we responded immediately and kept the water loss down to a minimum.

Since the installations were made, we have not been obliged to make any repairs to the equipment, and other maintenance has amounted to almost nothing, beyond a periodic inspection such as we give to all of our regular municipal fire alarm boxes.

Not one false alarm has been received to date from any of these ten master boxes.

I am a strong advocate of a direct tie-in between private sprinkler systems and the municipal fire department thru the Gamewell master box. It gives us a chance to reach a fire before it gets too big to handle easily. And, it gives us a chance to cut down water damage too -- because a dollar lost from water damage is no different than one lost from fire. Fire chiefs in other cities will make no mistake in recommending this hook-up to the owners of sprinklered properties.

Having seen your recent advertising on the "Sprinkler Watchman", I thought you would be interested in our experience here.

Yours very truly,

Robert M. Tappin

CHIEF, FIRE DEPARTMENT

The Gardner Trust Company (left)—protected by a Gamewell SPRINKLER WATCHMAN is typical of the buildings that should be so protected in every city.

THE GAMEWELL COMPANY
NEWTON, MASS.
"A Box a Block"

FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 86 MARCH, 1933 Number 3

With the Editor

An Astounding Suggestion

While industrial leaders and statesmen are considering legislation designed to establish a five day week in industry, officials in some cities are discussing the return to the single platoon in Fire Departments as a means of saving money. Paterson, N. J., is one of the latest municipalities to consider such a change. A local paper, which we assume reflects public sentiment to some degree, recently made the following comment on the proposition:

"We have, time and again, called the Fire and Police Commission's attention to the over-manned Fire Department, referring likewise to the two platoon system which ought to be abolished, thus relieving the payroll of 100 men and bringing down the cost of that one department at least $250,000. Now the taxpayers' league, in part, upholds our contention, this being done after serious consideration of all the elements involved.

"There is no doubt in our mind but what the two platoon system can be dropped. At this time, when every dollar must be saved, the city authorities are not going to make any further headway unless the reduction in the force is made. We can appreciate the splendid showing thus far produced by the drop of at least thirty points in the tax rate. But with the decrease in the Fire Department, the rate could be dropped sixty points less than last year. Isn't that worthy of consideration?"

Must the Fire Department fight this battle all over again?

It was only through a long, vigorous, organized fight that the public was made to understand the inhuman treatment accorded its servants in the fire service and to grant them employment conditions which, while far from being ideal, were a big improvement over the single platoon system.

Those who are so quick to suggest penalizing the Fire Department members because other city officials have not been able to run the city on a businesslike basis have probably never considered what it means to be away from one's family regularly five out of every six days or six out of seven days.

A member of a modern Fire Department gives the city in service far more, proportionately, than it pays for. With the longest shift of any municipal employee and the most dangerous of work when he is called on to work at a fire, shorter, and not longer hours should be the order of the day.

The adoption of the two platoon system has resulted in tremendous improvement in personnel of the Fire Department. It has developed a spirit of loyalty which the one platoon penal-servitude type of duty destroyed. It has improved family life of the firemen's household and thereby provided the incentive for the ambitious fireman to improve himself for advancement in the service. The result is that today we have a much better educated and better trained body of firemen than that of twenty-five years back. And yet there are those who would be willing to sacrifice all the gains so far accomplished and put the firemen back on the inhuman twenty-four hour duty just to save a little in taxes for the rest of the people.

There can be no retreat, however. The two platoon system is here to stay. If there is to be any change it should be to a three platoon. Such change would be in direct harmony with the present national movement to share work. Instead of increasing unemployment by throwing a lot of capable firemen out of work, such as would result from reinstitution of the single platoon system, the three platoon would give a larger number steady work and would produce all the benefits which increased employment and increased purchasing power in a city make possible.

Surprising, isn't it, how ready some people are to suggest legislation cutting the other fellow's salary, making his hours of work longer, or depriving him of a job? We believe, however, that little progress will be made toward restoring the single platoon system. It took a lot of work, and a lot of time to abolish slavery in the South. It never came back! Neither can slavery in the fire service return.

Fred. Shepperd

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Present Business Conditions Have Developed Serious

Industrial Fire Hazards

Chief W. W. Stephen

By W. W. STEPHEN,
Chief Fire Department,
Swann Chemical Company,
Birmingham and Anniston, Ala.

ONE phase of the effect that present business conditions are having on industry is that fire losses in plants of the medium or smaller type seem to be increasing, due to conditions brought about by curtailed or suspended operation. One reason is the reduction and, in many cases, the almost total depletion of working forces, with the result that when a fire takes place it is likely that not enough men, or trained men, will be present to fight it.

It is true that the cessation of some manufacturing processes may lessen temporarily certain hazards incidental to them and thus decrease the frequency of fires, but it is also true that many sources of danger remain, such as spontaneous combustion, electrical installations that must necessarily remain alive, but under unskilled or no supervision, bad housekeeping (which in a dead plant means much worse housekeeping) and numerous others, even including the carelessness of solitary watchmen. Fires, indeed, may and do occur, and any blaze breaking out among the above environments is likely to be a calamity.

The protection of a municipal Fire Department may be available, but frequently the medium or smaller type of plant is situated on the outskirts of town, where the nearest fire station is a long distance away and where the mains of the water system are small. Also, there remains the fact that city Fire Departments are being reduced in man power, active equipment and the number of stations they have in operation. The control of city governments is changing hands at almost every election and there is a much better chance for the touch of politics to enter into their affairs.

Lack of Care of Apparatus Element of Danger

Another reason for mounting industrial losses is that although enough men may be present in a plant to operate the fire apparatus available they may find it, in an emergency, useless from lack of care and replacement.

To reduce expenses many maintenance forces are at a very low ebb, and when hard pressed to keep up the operating machinery that must have its wheels turning they may very easily neglect the valves of fire mains, the condition of fire pumps, the lubrication and state of hydrants and other vital points that may be remembered only when the moment of extreme need arrives.

Extinguishers may not be recharged where there is no designated fire brigade and operating officials have their minds on budgets. Hose not properly cared for will become aged before its time and may not be replaced when actually too old. It is very true that in many factories bad times have existed over a period longer than the ordinary life of industrial fire hose.

A third reason has to do with mental rather than physical properties. The minds of men, whatever and wherever their situation, are often disturbed in this day. Executives and workmen fear the future, and wide experience indicates that a man doing his work while beset by apprehension is likely to become a menace to his own safety and the very existence of his plant.

The three reasons for fire losses heretofore discussed may be effectively remedied in any great or small organization to a considerable and marked extent by managing executives, industrial fire chiefs, or any one with the authority and the will to do this.

Importance of Careful Training

With regard to the problem of fire extinguishment by a working force reduced in numbers the answer lies in taking the few men available and training and drilling them into an effective fire fighting unit.

At least several foremen, office employees and executives are likely to remain on duty, and these men can be exercised in a drill school and made into good firemen. Departmental heads and bookkeepers, though their wind may be short and their hands soft, can be taught to work extinguishers, lay hose lines, operate controlling nozzles, raise and climb ladders, open up and ventilate buildings and to get to the vital point in a fire. Also, you will find that they will learn much more quickly than the average run of workman.

Watchmen, as generally employed, are not often of much value as firemen. Many are selected because they have become unable to do anything else and are substandard with regard to physical condition and mental alertness. Nearly all of them, however, when properly instructed, can be trained to be efficient in the matter of looking out for fire hazards, detecting fires and turning in alarms.

Well Trained Employees Put Out Fire

At plants with adjoining villages, or quarters where employees live, an effective fire brigade can be kept trained among these people, even when they are not working. The writer has seen several cases that proved this statement. On one occasion, about twelve years ago, in a plant where he had charge of fire protection, a fire broke out during a Winter night when only two men, who were watchmen, were on the premises. They

started an air compressor that supplied the plant whistle and blew the alarm signal.

A drill school had been carried on among employees that lived in the village near the plant and these men, quickly running from their homes and climbing the fence or entering the gate, laid several lines of hose and put out the flames that had involved an alarming area of a large wooden building, and which soon would have been threatening the entire plant.

Avoiding Deterioration in Fire Apparatus and Hose

With regard to the problem of the depreciation of fire apparatus and the lack of funds for replacement, the fact exists that by taking proper care of whatever apparatus is now in the employees' hands may prolong its life for a number of years and by placing it stragetically and using it effectively increase its protective value.

A good example is the care of fire hose. Whenever it is used the canvas jacket should be carefully swept clean of all dirt. When used in many places it should be thoroughly washed and carefully dried. If not used often, it should have water run through it every three or four months and its position should be shifted in the fire truck hose body or hose house shelf where it is carried. It should also be tested under pressure several times every year.

When improperly cared for the life of industrial fire hose is often not more than twelve months, but that its existence may be very much extended is attested by the fact that the writer has used and kept hose in good condition for more than ten years.

By thus conserving apparatus and consequently the amount necessary to be expended to secure protection the employee may aid his employer in the reduction of plant costs at a time when this is of vital necessity.

With regard to the problem of fire hazards resulting from the lowered morale of employees he may very effectively solve this by constant vigilance, frequent and careful inspections and the correct application of mass psychology.

When men are taught that a fire loss will definitely end their job, even though they are working now on reduced time they will exert every effort to keep from having that fire.

It should be the realization of every industrial Fire Chief at this time that the future of his business organization may lie in his hands.

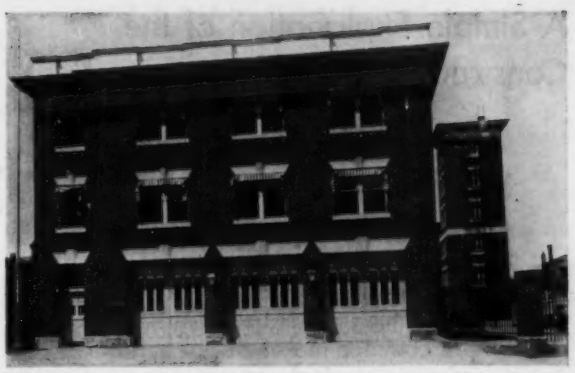
TWO NEW FIRE STATIONS TO AFFORD BETTER PROTECTION TO BOSTON

New Fire House Recently Opened in South Boston and One in Roxbury Section, Adjacent to the Fenway

A SPLENDID new fire house was opened recently in the South Boston district of Boston, Mass. It is situated at the corner of K and Fourth Streets and provides quarters for Engine Company No. 2 and Ladder Company No. 19. The building is of red brick with limestone trim and is three stories in height. It was erected at a cost of $250,000. It replaces two old fire houses.

The plans were drawn by Harrison H. Atwood, Boston architect, and the contractor was J. A. Singarella. The house is of the three door Colonial type. In the basement are racks for drying hose. The heating equipment is also located here. The patrol desk and the apparatus room are on the street floor. On the second floor are the officers' rooms and two dormitories. The recreation and smoking room, locker room, and study room are on the third floor.

The equipment includes shower baths, clothes drying room, kitchen and dining room, closets, and safety deposit lockers where the firemen may leave their valuables without fear of having the articles stolen while the apparatus is absent at fires. In the yard at the rear of the structure there is a brick drill tower which will be used by all the men and apparatus in the district for company evolutions.



New Fire Station for South Boston, Mass. Note Drill Tower in Rear

The new house was placed in service following an inspection by Fire Commissioner Edward F. McLaughlin, Chief Henry A. Fox, and District Chief Michael J. Teehan.

New Firehouse for Roxbury Section

Plans have been prepared for construction of a new firehouse in the Roxbury section of Boston, Mass., adjacent to the Fenway to replace the old firehouse at Longwood and Brookline Avenues occupied by Engine Company No. 37 and Ladder Company No. 26. These companies will be moved to the new house which will be situated on Huntington Avenue and will also serve as quarters for the Chief of District 8. The placing of the District Chief's office in this house will bring him to a more central location in the district.

Fire Commissioner Edward F. McLaughlin has approved the plans which were drawn by the firm of Krokyn, Browne, & Rosenstein. The building will be of modified Colonial design, three stories high, of limestone and brick. The street floor will be occupied by the apparatus and patrol desk. On the upper floors will be dormitories, locker space, wash rooms, and recreation rooms. Offices will be provided for the District Chief and for the commanding officers of the companies stationed in the building.

This new station is intended to afford better fire protection for the hospital, educational, and apartment house district which has developed in the Back Bay and in the vicinity of Parker Hill.

Edward E. Williamson, Superintendent of Maintenance, B. F. D., will have general supervision of construction.

HARRY BELKNAP.

A Simple Explanation of the Construction and Operation of

Fire Hydrants

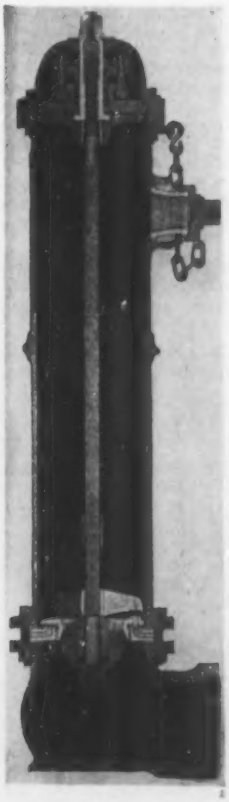
This is the third section of an article which describes some of the more common makes of fire hydrants.

By N. N. WOLPERT,
Assistant Editor,
Fire Engineering

FIRE engines had arrived, had performed the required tasks, and had departed. Near hydrants from which water was obtained were tell-tale pools of water. The passers-by did not deem them worthy of a second glance. The miniature lakes, to the trained-fire-fighter, represented a complete story.

They revealed that fire companies upon arrival at a fire scene, had no trouble in finding a plentiful supply of water, for hydrants near the property were in good operating condition.

Hydrants are always assumed to be ready for service, but very often they are not. Either because of defects in mechanical construction or design, or through lack of proper installation or maintenance, the mechanism fails to function properly. During the cold season, improper drainage of water which remains in the barrel, results in an ice jammed valve.



Section of Darling Hydrant

Such conditions can be corrected through a proper understanding of the construction and operation of fire hydrants so that hydrants that are not properly installed will become a rarity. One is less apt to mistreat a mechanism if one thoroughly understands its construction.

In the previous issue, mention was made of the proper installation of hydrants, the use of the drip valve, and anti-freezing compounds. Three of the many hydrants in common use were described. This article continues with the description of other hydrants so that the fire department officer will be in a better position to advise city officials, if called upon to do so.

The Darling Hydrant (Darling Valve & Mfg. Co., Williamsport, Pa.), has been designed so that inspections and repairs can be made with ease. The manufacturers claim that one man on an inspection tour can quickly and easily take all the working parts of a Darling hydrant out through the top of the barrel so that he can see the mechanism and know whether there is immediate need of repair.

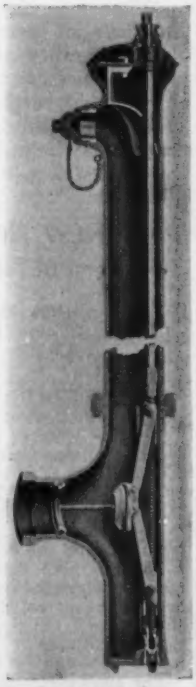
The inspection is made by removing six bolts. The thrust plate and packing plate are released by unscrewing the operating nut on the valve rod. A few turns with a seat wrench permits the removal of all internal parts, including main valve seat and drip valve seats.

When the operating nut is turned to permit the flow of water into the hydrant, the hydrant valve is lowered and at the same time the drain openings are closed by the drain valve.

Extension sections are provided from six to sixty inches long so that the hydrant can be raised to the required level, due to change in street grade, without using new internal parts and without having to disconnect the hydrant from the base line.

Corey Hydrant

The Corey hydrant (Rensselaer Valve Company, Troy, N. Y.) is operated on the knuckle joint principle. In opening the hydrant it is only necessary to give the spindle about four turns. However, the operator should continue turning the spindle until the gate is open so that there will be no obstruction to the flow of water. In closing, the first turn of the spindle moves the valve nearly two inches. After this the speed of closing decreases and the amount of power applied increases. The last turn of the spindle only moves the valve about one-eighth inch.



Section of the Corey Hydrant

The drip valve consists of a holder, a cup shaped molded piece of specially prepared rubber, a washer and a bolt. The holder is threaded and moves up and down on the spindle as the hydrant is operated. When the hydrant is closed, the rubber is in the upper part of the barrel and moves to the lower part of the barrel when the hydrant is opened. About one-half of a turn of the spindle is required to take up the elasticity of the rubber valve before the water will flow into the hydrant.

The manufacturers claim that this hydrant delivers a solid stream of water the full size of the valve opening as the operating rod is not in center of the barrel. A deflector at the top of the hydrant turns the water, as it

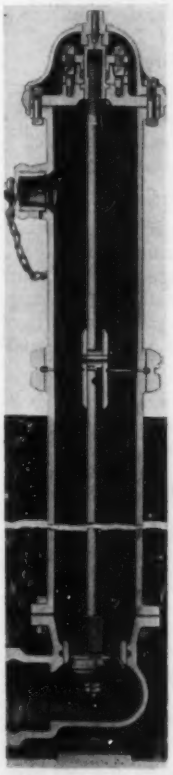
rises in the standpipe, out into the hose nozzle outlets.

Interior working parts can be removed by taking out the hydrant head bolts.

When closed, the gate is held in position by the half-ball ends of the arms running in grooves in the back of the hydrant. These arms form four solid braces between the back of the hydrant and the gates.

Kennedy "Safetop" Hydrant

A special breakable section has been incorporated in the design of the Kennedy "Safetop" hydrant (The Kennedy Valve Manufacturing Company, Elmira, N. Y.) as a protection against possible damage by impact from trucks and other vehicles.



Section of Kennedy Hydrant

Near the ground line of the hydrant is the safety section which under normal conditions serves as a part of a one-piece standpipe and stem. Should the hydrant be damaged as the result of a collision, it is only necessary to replace the breaking ring and a stem coupling.

The standpipe and stem are in two sections abutting each other slightly above the ground line. The two standpipe sections threaded at their abutting ends and a correspondingly threaded breaking ring holds the two sections in alignment. The two stem sections are held in proper position by a coupling which is secured to each section by a large pin. During normal operation of the hydrant, this coupling acts as part of the stem. In case of accident, both the ring and the stem will break at the groove provided.

The hydrant nozzles can be made to face in any desired direction by backing the breaking ring in a quarter or half turn, rotating the nozzle head to the new position, and then tightening the breaking ring until it becomes locked.

In case of a break, the water pressure in the main holds the valve firmly against its seat.

The manufacturers claim that a hydrant which has been damaged by a truck can be replaced in eleven minutes at a nominal cost.

Massachusetts Chiefs Meet

The February meeting of the Fire Chiefs' Club of Massachusetts took place at the Parker House in Boston on February 15, following the customary luncheon. President David A. DeCourcy directed the proceedings, assisted by Secretary F. Burt Jaquith.

The principal speakers were Ralph Sweetland, Secretary of the New England Insurance Exchange, whose topic was "Rates and Rate Making"; and Clinton W. Elwell, Branch Manager, Fire Companies' Adjustment Bureau, Boston, Mass., who spoke on "Losses and Loss Adjustment."

Chief William C. Mahoney, of Peabody, reported as Chairman of the club's Legislative Committee. Chief John C. McNally, who was recently named head of the Somerville Fire Department, was elected to membership. Fire Commissioner William H. McManus, of Brookline, who was elected to the club at the January meeting was present and was introduced by Chief Selden R. Allen, of Brookline.

Half century certificates were presented to Chief Fred A. Leonard, of Taunton, and Chief William C. Shepard, of Pittsfield. As Chief Leonard was absent because of illness it was decided to send the certificate.

Chief Allen made the presentation speech to Chief Shepard, who has just retired as head of the Pittsfield department. He paid a touching and eloquent tribute to the Chief who is a Past-President of the New England Association of Fire Chiefs.

Announcement was made that the April meeting of the club will be held in conjunction with the meeting in Boston of the Massachusetts Safety Council.

HARRY BELKNAP.

Jessen Heads Monmouth County Firemen

Richard A. Jessen, former Chief of Keansburg, N. J., was re-elected President of the Monmouth County Fire Chiefs' Association at the annual meeting held in Union Beach. All the other officers were also re-elected. They are Charles N. White, Long Branch, Vice-President; William O'Brien, Belmar, Secretary and Harry Posten, Atlantic Highlands, Treasurer.

The schedule of meetings follow: February 27, Keyport; April 24, Red Bank; June 26, Hazlet; August 28, Atlantic Highlands; October 23, Matawan and December 18, Long Branch.

Easterbrook, Fire Historian, Dead

H. H. Easterbrook, formerly editor of the *Firemen's Standard*, died recently in Westboro, Mass. He was the author of a book, "A History of the Newton, Mass., Fire Department," and a history of the development of fire fighting and fire departments of the world.

He formerly lived in Newton and took great interest in musters and in the records and doings of the veteran firemen's organizations. He compiled a valuable series of scrap books dealing with fire department activities. Mr. Easterbrook was over seventy years old and had been in failing health for some time.

HARRY BELKNAP.

CHIEF TERRELL, ATLANTA, KILLED RESPONDING TO FALSE ALARM CALL

Car Struck Broadside by Auto Driven Recklessly by Negro—Chief Left Position as Teacher—Joined Atlanta Department

CHIEF JOHN TERRELL, head of the Atlanta, Ga., Fire Department, died when the official car in which he was riding to answer a false alarm was struck by another car containing five negroes. The official car was hit broadside and the Chief was thrown from the automobile. He was taken to the hospital in an unconscious condition from which he did not rally. His chauffeur received superficial injuries.

The Late Chief John Terrell

Chief Terrell was born in Ball Ground, Ga., December 24, 1869. He taught school at Sharp Mountain for two years before coming to Atlanta early in 1891. On March 7, 1891, he enlisted as a fireman.

In 1894 he was promoted to Captain. He was made Assistant Chief in February, 1928. Following the death of Chief William B. Cody, he was elected head of the Atlanta Fire Department on November 29, 1929.

He was active in the affairs of the Jason Burr Council, Royal and Select Masons; Royal Arch Masons, Cour de Lion Commandery, Knights Templar; Yaarab Temple, A. A. O. N. M. S., and the Scottish Rite Masons.

Chief Terrell is survived by his widow, two sons and three daughters, three sisters and a brother.

Assistant Chief William Butler has been placed in charge of the Fire Department temporarily.

The Fire Service Instructor

The ninth installment of a treatise to aid those responsible for training men in the fire service to develop a systematic type of teaching.

By O. D. ADAMS,
State Director for Vocational Education in Oregon, and Prof., Industrial Education, Oregon State College

and

EDWARD L. BOATRIGHT,
Battalion Chief, Portland, Ore., Fire Department, and Director, Portland Fire College

Chapter VI. (Continued)

Helps in Teaching

I. Principles of Learning

3. *The Law of Effect:* Successful accomplishment is one of the finest devices imaginable for encouragement. Unless one feels a satisfaction from completing a task, there is little real learning in it. As we progress in our golf game, it gives us added zeal to go out and make a record, while a poor score gives just the opposite effect. This is called the LAW OF EFFECT, and without it there would be little improvement obtained for any of us. Use it—it's a good teaching aid.

II. Use of Teaching Devices:

The Blackboard: An instructor must use every device possible to gain the attention of the learner. The blackboard presents one of the best forms of contact between instructor and learner. The lesson can be outlined, before the class period, or diagrams, sketches and illustrative material may be prepared and displayed to good advantage. By using the blackboard, the instructor makes use of the sense of sight as well as hearing and two impressions rather than one, register on the brain of the learner. In place of a blackboard, if you haven't one, results can be obtained by using large sheets of news stock or book stock obtainable at any printing establishment, and by fastening them together by two narrow strips of wood. When hung upon the wall and written on with a china marking or grease pencil, or a piece of lumber crayon, the combination is very satisfactory.

Lantern Slides and Motion Pictures: Almost all the larger fire schools have an abundant supply of this material. It is only necessary to consult with them if you cannot prepare slides for your own use.

Other Devices: Certain illustrative materials are supplied in the form of photographs, charts, graphs, models and exhibits, by the equipment houses. Blue prints of apparatus can be obtained usually for the asking, along with catalogs, magazines, and government pamphlets. This material may be utilized to further the cause of good instruction.

The public library is a "fount of blessing" and the assistants are not only willing but anxious to assist you in solving your problems. You will find the average librarian well qualified in the field of reference, and upon investigation, more material can be located than one might have the time to use.

A Study Bulletin can be used to advantage when passed out after the lesson has been presented. The two following bulletins illustrate the idea.*

*Bulletins on various topics have been prepared by the International Association of Fire Chiefs.

Study Bulletin

Common Fractions—Meaning of Fractions

A. had a piece of rope which he cut into four equal parts. He gave B. one of the four equal parts and C. two of them. In all, A. gave away three of the four equal parts and kept one of them. Instead of saying "two of the four equal parts," we may say "two fourths." Instead of saying "Three of the four equal parts," we may say "three fourths."

One fourth is written ¼.
Two fourths is written 2/4.
Three fourths is written ¾.
Four fourths or one is written 4/4.

One of the two equal parts of anything is one-half of it and is written ½.

Three of the five parts of anything is three-fifths of it and is written 3/5.

Seven of the fifteen parts of anything is seven-fifteenths of it, and is written 7/15.

Definitions

Fraction: A number which shows how many equal parts of anything are taken is called a fraction.

Terms: The number which shows into how many equal parts a unit has been divided to make a fraction is called the Denominator of the fraction.

The number which shows how many equal parts of a unit have been taken to make a fraction is called the Numerator of the fraction.

Common Fraction: A fraction like ¾ in which both terms are expressed, is called a common fraction.

Unit Fraction: A fraction like ⅛ in which the numerator is 1, is called a unit fraction.

Proper Fraction: A fraction like 2/3 with the numerator less than the Denominator is called a Proper Fraction.

Improper Fraction: A fraction like 4/4 or 5/4 in which the numerator equals or exceeds the Denominator is called an Improper Fraction.

Integer: A whole number like 7 expressed without fractions, is called an Integer.

Mixed Number: A number like 2¾ composed of an integer and a fraction taken together, is called a mixed number.

A fraction decreases in value as the lower term or denominator increases—Examples:

½, 1/3, ¼, 1/6, ⅛

It can readily be seen that ½ is larger than ⅛ because ½ shows that one of two equal parts of anything is taken; whereas ⅛ shows that one of eight equal parts of anything is taken.

½—One-half.
1/14—One-fourteenth.
1 2/3—One and Two thirds.
19/156—Nineteen One Hundred Fifty-sixths.
14/382—Fourteen Three Hundred Eighty-seconds.
4/27—Four Twenty-sevenths.
⅞—Seven-eighths.
4/5—Four-fifths.
6/72—Six seventy-seconds.
9/10—Nine-tenths.

(To be continued)

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

MAINTAINING BATTERIES ON FIRE APPARATUS

BATTERIES on fire apparatus require much more frequent attention than other parts of the mechanism. Heavy demands are made on the batteries by the daily turning over of the motor and by the runs in answer to fire alarms. Much more current is used in starting the powerful motor than is required by the average pleasure automobile.

The battery must be inspected frequently as a safeguard that the charge is satisfactory and to discover any mechanical defect. Once the battery "goes dead" the powerful fire apparatus becomes useless.

The problem in full that is discussed in this issue appears in the box on this page. It is a continuation of the Round Table that was published in the February issue. In the box on the following page is the question that will be treated in the next issue. Should you have some comments that you would like to add to the next discussion, you are invited to write to the "Round Table Editor," FIRE ENGINEERING, 24 W. 40th Street, New York, N. Y.

Discussion of the Question

Monte McEachern, Chief, Columbus, Ga.: It is the duty of the first engineers on all machines to see that batteries are kept filled with distilled water and kept clear of corrosion. This rule is enforced very rigidly.

Batteries are charged without being taken off the machines by a rectifier. It is necessary to recharge them about every two months.

Our batteries are given the best care and we never let them run down entirely.

Archibald Cook, Chief, Chelmsford, Mass.: The batteries in our department are charged by outside service when needed. This method insures proper starting at all times. Recharge averages about four charges per year.

W. J. Hudson, Chief, Pleasantville, N. J.: Our batteries on the apparatus are kept in proper condition by daily inspection. Trickle chargers are used to recharge batteries on the apparatus room floor.

It is necessary to charge new batteries about every two weeks. Old batteries (over 1 year) must be recharged every 5 or 7 days. Batteries over two years old are unreliable and should be discarded.

Harry McCullough, Chief, Arkansas City, Kan.: On Monday morning each driver is required to fill out a truck inspection blank which gives the hydrometer reading of each battery. Should they find that the battery records below a certain reading they place a trickle charger on the battery without removing it from the apparatus. When a battery fails to hold a charge we replace it with a new one, because on fire apparatus one cannot afford to be in doubt about starting.

C. J. Dean, Chief, New London, Wis.: We use trickle chargers to keep our batteries in proper condition. Batteries are checked every day and charger hooked on only when necessary. We install new batteries every two years.

John J. Gilday, Chief, Hoboken, N. J.: Batteries are tested twice daily at 8 a. m. and 6 p. m. by the incoming chauffeur. Our batteries are recharged by our department repair shop. They are recharged on the average of every two weeks. The outgoing chauffeur must have the motor running for the incoming chauffeur, who in turn must report conditions as found to the commanding officer. This report is entered in the journal.

Albert Herring, Chief, Murphysboro, Ill.: We keep our batteries up by regular inspection and charging. We use the trickle charger and never remove the batteries from the cars.

We give each battery a 48-hour charge monthly. We have found it to be a benefit to the batteries that they receive what we term an "outside charge."

Charles J. Foucek, Fire Marshal, Naperville, Ill.: The batteries on our fire apparatus are examined and tested weekly by the engineer for voltage, gravity and water and a record of same is made by him in a book provided for that purpose and wherein also appear records pertaining to gasoline, oil, radiator, tires and all repairs to the apparatus. A separate book is kept for each piece of apparatus.

The charge in the batteries is maintained with a 5.3 volt charger, which we find necessary to connect every two weeks. Each piece of apparatus has been provided with a receptacle on the dash for the charger plug. We have installed a reel of wire in the ceiling of the fire station containing sufficient rubber covered wire to reach the dash of the apparatus.

Any traces of corrosion in the battery terminals are immediately washed off with a solution of bicarbonate of soda, after which the terminals are thoroughly dried and a light coating of oil applied.

Julius Marker, Chief, Idaho Falls, Idaho: We have a motor generator mounted in the basement of our station, and wired in conduit to a wall outlet, and from there we use an extension cord to the trucks. Batteries are charged right on the trucks. We have a regular time every other week for testing and recharging. Charging rate is about six amperes, until batteries are up to 1,250 or better.

Frank Cescolini, Chief, Trinidad, Ohio: One man in the company is responsible for the condition of the truck batteries.

The batteries are not removed when charged. We use battery clips attached to a plug which separates if truck is called out, thus doing away with the disconnecting of wires. Prongs of plug and cap are marked to check polarity. We use a Tungar charger, but are equipped to use a lamp bank from power furnished by an ice plant.

We find it necessary to charge the batteries about every 21 days on a basis of 140 calls per year.

W. A. Foster, Chief, Boise, Idaho: Our batteries are kept in good condition by a regular inspection every ten days and charging when necessary.

We charge our batteries while on the apparatus with a motor generator set. This method avoids putting the apparatus out of service. We find it necessary to recharge batteries about every forty days.

HERE IS THE PROBLEM

How does your department keep the batteries on fire apparatus in proper condition?

Are trickle chargers employed, or are the batteries removed and charged by private battery stations, or by the department repair shop?

On the average how often do you find it necessary to charge these batteries?

W. L. Pitts, Chief, Selma, Ala.: We use a Tungar battery charger for recharging our batteries. This enables us to charge them without taking them off the apparatus. The chargers are disconnected when the fire alarm rings.

We find it essential to put the chargers on the batteries about once a week for about 12 hours.

L. B. Rapp, Chief, Lynchburg, Va.: All batteries in our department are charged at the Central Fire Station If they need repairs they are sent to a private battery station.

Wm. E. Titus, Chief, Pawtucket, R. I.: Batteries on fire apparatus are inspected at least once a week by the one in charge of apparatus at each local station. Rectifiers are located in each station, so that batteries may be charged while apparatus is in service.

The charging of batteries depends on the number of times they are used in starting cars on alarms, an average probably being about once every two weeks.

John T. Moore, Chief, Memphis, Tenn.: We have a contract with a local battery station for the recharging of batteries on fire apparatus. Batteries are recharged about every sixty days; a rental fee of twenty-five cents per day and fifty cents for recharging is paid.

S. D. Logan, Chief, Hanford, Cal.: We use a charger to keep our batteries in proper condition and find it very satisfactory by not having to remove the battery from apparatus. While apparatus batteries are tested regularly as to their condition, we find they will hold up 10 to 14 days, depending entirely on the use they are put to.

D. J. Noonan, Chief, Vallejo, Cal.: Apparatus batteries are inspected every morning when shifts are changed. We use a charger, and the batteries are charged by slow charge. The battery is always left in the truck so that no time is lost in case of an alarm.

We use a special made battery which is good for at least three years' service.

John J. Kronanbitter, Maywood, Ill.: To keep batteries in good condition, we use a rectifier charger. Batteries are charged on the apparatus. We use polarized receptacle and plugs with a heavy drop cord to charger. Cord is run through pulleys with a weight attached so in case of a call all the driver has to do is pull out the plug and the weight will pull the cord out of the way and clear the apparatus.

We charge the batteries about once a week, depending whether or not the apparatus has a generator on it or not.

Michael W. Lawton, Chief, Middletown, Conn.: The batteries on our trucks are inspected each week, and if distilled water is needed it is added to the cells.

At the Ceneral Station we use a Westinghouse Rectigon Charger which is connected to the city lighting system. We use a slip connection so that in case of an alarm the driver just pulls the connection and he is ready to go. His charger is mounted on a portable table so that it can be moved easily, and can be placed away from the trucks while in use.

Our batteries are charged about once a month. We never let them get below 1,250, as we find it much easier to keep them up to a full charge in this way.

Frank M. Davis, Chief, Danville, Ill.; All batteries are inspected every Monday morning and when charge is needed we have a motor generator mounted on a small wagon that is pulled alongside of the truck. In case of an alarm while charge is being made, the driver throws switch on panel of motor and removes clips.

Batteries are charged about every twenty days, but no battery is allowed to run clear down.

W. R. Price, Chief, Springfield, Mo.: I find that the best policy is to hold each driver responsible for the care of the battery on his truck, insofar as water and charging is concerned, as he is the one using it and should know its true condition. Trouble beyond water and charging is taken care of by our mechanic.

In case a battery has to be repaired, we take it to a service station handling that particular make of battery. We employ a General Electric Tungar battery charger, as it requires less attention and causes less injury to a battery in case of neglect. It is also economical to operate.

If a good make of battery is purchased we find, that with proper care, it will last from three to five years. Batteries are charged as required.

M. S. Phillips, Chief, Chicago Heights, Ill: We have a charger, and connected to each piece of apparatus by extension cord. We then plug into the battery while in place on the apparatus and in case of response to an alarm, simply pull out the plug on the extension cord. Batteries are charged as required, varying from two or three times a month..

C. C. Hassett, Chief, McLeansboro, Ill.: In keeping our apparatus batteries in proper condition we use a portable 6-ampere Tungar rectifier, plugged into convenient wall sockets. The batteries are mounted on the running boards and are charged without removing them from the trucks. In case of an alarm the charger can be quickly disconnected.

Batteries are brought to full charge on an average of about once a month, an accurate hydrometer being used to determine their condition.

Louis Perret, Chief, Boone Terre, Mo.: Apparatus battery is tested each day, an extra battery is carried on truck with cable long enough to make temporary connection without removing battery from box. We use a 5-ampere charger of the Tungar type.

S. J. Flores, Chief, Shreveport, La.: We build our own batteries for all equipment. They are kept in proper condition by the Fire Department shop. They are charged on equipment by slow charge rate. Batteries are charged about once a month.

E. W. Kidd, Chief, Newman, Ga.: We use the trickle charger and recharge about once every two months. We use two six-volts instead of one twelve, and have very little trouble while the batteries are new.

Guy Giddings, Chief, Hastings, Mich.: Our batteries are charged by expert battery men, and tested once a month They are charged whenever they get below 1,300.

F. E. Robertson, Chief, Jefferson City, Mo.: We have a trickle charger in our department to keep our batteries charged. Batteries are never removed from the machines. They are charged about once every three months and tested once a week so we know they are in good condition.

W. M. Mullins, Chief, Roanoke, Va.: Our department uses a Tungar battery charger. Batteries are not removed from apparatus from the time they are placed in service until they are repaired or replaced.

Batteries are given a 24-hour charge about every two weeks with this charger. An extension cord is used so that the charger can be used near the apparatus. In the event of an alarm it is easily unsnapped. We have found this method very satisfactory, both from a maintenance standpoint and low current consumption. Batteries last any where from four to six years.

Giles Dow, Chief, Stoughton, Wis.: Two of our trucks are equipped with chargers, which are of some help on long country runs and when pumps are operated for a long time. We have a Tungar battery charger which keeps our batteries up in good shape. Have never found it necessary to remove a battery for charging at a service station. The Tungar is used perhaps once in five or six weeks.

F. E. Chamberlin, Chief, Chillicothe, Mo.: Our apparatus batteries are kept in condition by a trickle charger, which is the property of the department. It is necessary to recharge batteries about every six weeks, depending on the number of alarms to which the apparatus has responded.

Chief of Fire Dept., Menomonie, Wis.: Apparatus batteries are kept charged by use of our trickle charger. Batteries are not removed from the apparatus for recharging, so that the charger can be quickly removed in case of an alarm. All batteries are given a charge of from 2 to 4 hours each week.

Wm. J. Downing, Jr., Chief, Salisbury, Md.: We keep a close check on apparatus batteries to see that they are in proper condition at all times. They require charging about once a month, which is done in our department shop by our own battery charger.

HERE IS THE PROBLEM FOR THE NEXT ISSUE

What plan do you use for drying fire hose?

In what way has weather conditions an effect on this arrangement?

If you were to consider hose drying equipment, what type would you install and why?

J. C. Inglee, Chief, Whitehall, N. Y.: We have our own battery charger, and find it necessary to charge apparatus batteries twice a week.

J. C. Pierce, Chief, Woodstock, Ill.: By frequent inspection our apparatus batteries are kept in good condition. The batteries are removed from the equipment and charged about every three months.

Herman A. Luedke, Chief, Plymouth, Wis.: The department employs a trickle charger to recharge apparatus batteries. We find it necessary to charge our batteries about four times a year.

Wm. F. Welch, Chief, Lynn, Mass.: By constant testing our apparatus batteries are kept in proper condition. It is necessary to charge these batteries every two weeks, for which a trickle charger is employed.

M. O. Matthews, Chief, Bozeman, Mont.: We keep our batteries up at all times, charging them once a week up to 1,250. We have a 75-volt rectifier and charge without removing battery from truck. Have found this very convenient. While it is not necessary to charge them as often as once a week, it is no trouble to do so, as we are anxious to keep them well charged at all times.

H. G. Painter, Chief, Kent, Ohio: Apparatus batteries are kept in good condition by careful check and proper recharging. Batteries are never removed from the apparatus, a bench being placed at the side of the truck and charger applied as truck is on the floor. Recharging is required about once a month.

George Ruey, Chief, Canton, Ill.: The batteries in my department are inspected and charged on or about the first and fifteenth of each month. We never remove them from the trucks, using a portable trickle charger for recharging. Each driver in my department is required to care for the battery on his own truck.

John L. Lucier, Chief, Northampton, Mass.: The Supervisor of Motor Apparatus has charge of all batteries. An outlet has been placed near each piece of apparatus where a charger can readily be connected. Positive and negative plugs are accessible so that no mistake can be made in hooking up with battery. The rectifier used is large enough to take care of one or more batteries at the same time. Our batteries are tested every few days and are charged when the reading is around 1250.

George A. Brencher, 1st Asst. Chief, Darien, Conn.: In our Fire Department we have a larger tunger bulb charger, 12-battery capacity with overhead wires that can take care of any battery on the apparatus without it being removed. This charger is also capable of charging the hand type Carpenter wet battery lights which calls for a slow charge of 2 amperes per hour. We make it a practice to charge our batteries at least once a month as there is quite a drain on the battery with 32 candle power head lights, 50 candle power search lights, a large electric siren, blinker traffic lights, and triple tail lights. In the past we removed our batteries and had service stations charge them but soon found out that it was poor practice to do so, as it was not only expensive but bothersome. The present system has proven very satisfactory.

Paul W. Funchess, Chief, Carmel, Cal.: In order to insure quick and easy starting of a cold motor, we have installed for each unit of apparatus an auxiliary battery of like capacity, connected to the unit by means of heavy starter cable and heavy contacts. These are so arranged that it is automatically disconnected and remains in the stall when the apparatus is driven off the spot. Both the auxiliary battery and the regular battery contained in the chassis are thus used when starting.

A motor generator charging set is in use in the engine house with cables long enough to reach each set of external contacts, and the regular and auxiliary batteries of each unit are usually charged together, while in place.

The condition of all batteries is maintained by daily routine inspection and every starting unit is brought up to a fully charged condition at least once every two weeks.

Thos. H. Mead, Master Mechanic, Red Bank, N. J.: This is a volunteer fire department with six pieces of apparatus in six different stations. The department consists of two 1,000-gallon pumpers, one 750-gallon pumper, one 600-gallon pumper, one chemical and hose truck and one 55-foot city service truck. In keeping our batteries in proper condition we have a portable charger in each station and the Engineer is responsible for keeping the batteries charged. The Engineer is elected by the company to which he belongs and serves his company in that capacity. Elections are held once a year but changes of the Engineer seldom occur. Sometimes the engineer serves indefinitely by being elected each year.

The batteries are tested by the Engineer once each week. When our batteries start to go bad, we replace them with new ones. We do not believe in repairing them as we feel that this is taking a chance and we have no desire to take chances. The difference in cost between the repaired and the new battery is so little it is not worth taking such risks. Final inspections are made in the fire department shop in regard to terminals, wiring and starter. Our batteries last about five years. We have a special built battery and get a five-year guarantee with each one. If anything goes wrong in that time, they are replaced by the manufacturer free of charge provided the battery has had the proper care. We have 12-volt batteries on the 1,000-gallon and 750-gallon pumpers and 6-volt batteries on the other apparatus. The 750-gallon pumper came to us with 6-volt battery but we always had trouble starting. Eight years ago we changed to a 12-volt battery in this machine and have had no trouble since. We bought one new battery for it last year. The machine is fifteen years old.

Every three months the apparatus are brought into the fire department shop and given a thorough inspection. At this time the terminals are cleaned and repainted with a special paint which makes a much cleaner job than vaseline compounds.

Westchester Chiefs Discuss Many Topics

Several instructive addresses were features of the regular meeting of the Fire Chiefs' Emergency Plan, which took place at 8:30 p.m., on February 15, at Fire Headquarters, Pelham Manor, N. Y. There was a good attendance of Chiefs and other fire department officers present. The meeting was opened by President Steuhl, who called upon Mayor Lawrence F. Sherman to welcome the members. The Mayor stressed the importance of cooperation between the village or city authorities and the Chief of the Fire Department. He said that such cooperation was the keynote of the success of a municipality.

Several interesting and instructive addresses were made, the first of which was by George Swan, Office Engineer of the National Board of Fire Underwriters. His talk was on the uses of the various types of gas masks. He said that there had been apparent a reluctance of the older firemen to adopt the use of the gas mask, as they were not sure of its efficiency. This had gradually been overcome, as the device proved its worth. The speaker emphasized the importance of the men entering smoke filled buildings in pairs, for safety's sake. He described the various forms of masks and oxygen breathing apparatus and their uses. He said that where the department was too small to afford a separate rescue company, the ladder truck was the best place to install the masks and the men of that company should be instructed thoroughly in their uses. There was considerable discussion of the address.

A description and demonstration of a portable electric light and power plant was next given by a representative of the Homelight Corporation, New York City. This consists of a small gasoline engine that can be carried by one man, operating a generator, which forms part of the unit, and which can be used for flood lighting. The apparatus can be taken off of the fire truck and transported to the spot where it is needed for lighting a fire, rescue or other purposes.

The next speaker was Mr. Schubert, of the Mohawk Electric Manufacturing Company, who showed a special rectifier, combining trickle charge with rectifier charge. There is, according to the speaker, a meter indicating circuit conditions and a choke coil, which eliminates the hum. The range is from one to 32 cells.

An excellent paper was read by Chief John J. Brennan, on "Modern Methods of Fire Fighting." Chief Brennan treated the subjects of discipline, drills and training, handling of life hazards at fires, ventilation, interior exposure, cellar fires, shingle roof fires, salvage, care of hose, gas masks, first aid, etc. It was voted to incorporate the paper in the Plan's minutes.

The Chairman urged early consideration of the annual dinner of the Plan. He appointed as the Nominating Committee Chiefs Towle, Griffin, Grabb and McCoullough.

On invitation of Chief McCoullough, it was decided to hold the next meeting in Portchester, at the house of the Washington Engine Company, on the evening of March 15. A buffet supper was served by the Pelham Manor Department at the close of the meeting.

Chief W. E. Nusbaum of Eugene, Ore., rounded out thirty years of service. He joined the service in 1903 as a volunteer fireman.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Storage of Phosphorus

To the Editor:

What precautions should attend the storage of elemental white or yellow phosphorous contained in metal drums and kept in an alkaline solution?

S. W. W.

Answer: Yellow and white phosphorus act very much the same. There are two allotropic forms of phosphorus, yellow phosphorus and red phosphorus. White phosphorus is a yellow, semi-transparent, wax-like solid, insoluble in water, soluble in carbon disulphide, and slightly soluble in alcohol and ether. It ignites spontaneously in air, burning slowly at 50° F., and brightly at 140° F., forming dense clouds of white smoke consisting of phosphoric anhydride. It is very poisonous.

On account of its prompt ignition on exposure to air, the material is dangerous. It must be handled under water. It is sold usually in soldered tin cans, water filled. The tin cans often rust through, allowing the water to escape, ignition ensuing. The tin cans should be coated inside with pitch and painted outside with white lead. In storage they should be examined often, and repainted as necessary. They should be stored in metal containers properly insulated from other material. When phosphorus burns the vapors may cause corrosion of polished metals. Fires caused by phosphorus may break out repeatedly after being quenched, unless great care is taken to remove all the material.

Carbon Monoxide from Burning Coke

To the Editor:

Request is made for information on the development of carbon monoxide in the burning of coke.

Coal dealers here have been selling coke with the understanding that there is not the slightest danger of the generation of carbon monoxide gas in heating plants used in the ordinary home.

Recently a home owner came to us with a story of a small explosion occurring while he stirred up his fire in the morning. This explosion was not of any particular consequence but he became interested in the nature of the gas causing it, having been told that the generation of carbon monoxide was impossible. C. F. E.

Answer: With regard to carbon monoxide being formed from the burning of coke, this is readily possible.

Coke is largely carbon, and the combination with an insufficient quantity of air would produce carbon monoxide.

Of course, there is less likelihood of such being formed due to the better draft provided by coke when burning. Nevertheless the possibility is still present.

As an example of the latter, a coke fire may be closely closed in by shutting the draft and closing the pipe damper. In this case the coke will continue to burn in the presence of an insufficient quantity of air with the result that carbon monoxide will be thrown off. This probably explains the explosion you refer to.

Comparison of Nozzles

To the Editor:

In answer to "Comparison of Nozzles," as set forth in Questions and Answers of February, 1933, may I submit the following which I have used since I was an Engineer of Steamer for roughly estimating engine pressures:

Question 1—Desired N.P. 50; 1¼-inch tip; 300 feet of 2½-inch hose. What is the engine pressure?

Answer—½ of N.P. is loss per 100 feet—equals 25 x number of 100-foot lengths plus N.P.

½ of N.P. is 25 x 3 plus 50 equals 125, the answer.

Question 2—Desired N.P. is 40; 1⅛-inch tip; two lines of 2½-inch hose 400 feet long siamesed into one 100-foot lead line. What is the engine pressure?

Answer—1/3 of N.P. is loss per 100 feet x number of 100-foot lengths plus N.P. is E.P.

In siamese lines the loss per 100 feet is ¼ of single lines and fractions are considered as a whole to compensate for loss in siamese: As example,

1/3 of N.P. 40 is 14, loss per 100 feet single line.

¼ of 14 is 4, loss per 100 feet siamesed line.

4 x 4 is 16, loss per 400 feet of siamesed line.

16 plus 14 is 30 plus N.P. 40 is 70 required on the engine.

On page 22 of fire engine tests and tables (Red Book) issued by the National Board of Fire Underwriters, a ready method is offered but that method works out for only one pressure and only two nozzle sizes are given.

The following constants work out for 2½-inch hose, single lines,

1 nozzle take 1/5 of the N.P. x number of 100-foot lengths plus N.P. is E.P.

1⅛ nozzle take 1/3 of the N.P. x number of 100-foot lengths plus N.P. is E.P.

1¼ nozzle take ½ of the N.P. x number of 100-foot lengths plus N.P. is E.P.

1⅜ nozzle take ¾ of the N.P. x number of 100-foot lengths plus N.P. is E.P.

1½ nozzle take 1 of the N.P. x number of 100-foot lengths plus N.P. is E.P.

⅞ nozzle take 1/7 of the N.P. x number of 100-foot lengths plus N.P. is E.P.

For 1½-inch hose for ½-inch nozzle, 1/5 is used and for ¾-inch nozzle, 1 is used. Add 5 pounds per story for elevation to engine pressure.

The friction loss in siamesed lines is ¼ that of single lines.

When 3-inch hose is used, the loss is about 1/3 that of 2½-inch hose.

I added 1/7 for ⅞-inch nozzle because of the tip which all companies in this battalion use to cut down on water damage.

Yours truly,

JAMES HANLEY No. 3

Chief of 23rd Battalion, New York Fire Department

Handling Hay Barn Fires

To the Editor:

We have one 750-gallon pumper and one hose wagon with hose and all other necessary equipment. We also have four shut-off nozzles with 1-inch tips and two Gilson nozzles with ½-inch and 1⅛-inch tips. Water mains are 6 inches diameter and hydrants have one 4½-inch and two 2½-inch outlets. Pressure varies from 20 lbs. with quite a number of hydrants that will not supply more than two streams. We have about 14 miles of territory in the township with some run of 5 to 6 miles and quite a few farms. To date we have had a few barn fires and have not been able to put them out when they have hay in them. Is it possible to extinguish a barn full of hay with our present equipment, and, if not, what recommendation would you make? D. H. C.

Answer: With but a single pumper you certainly have a job on your hands when you are faced with a fire in a barn full of hay, particularly where the hay is loose. To add to your difficulty these barns are usually located away from satisfactory water supply and farther away from the center

of the town than other types of structures. The result is usually delayed arrival at the fire, and then additional delay in getting streams in operation.

You can usually count on the hay loft being entirely involved when you arrive, and in many cases, the fire out through the flimsy roof.

With but a single pumper, there would be, in such a case, little hope of saving the structure. The best that could be done would be to protect exposed buildings.

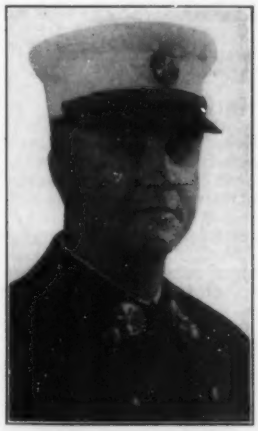
The usual method of handling such fires is to get streams in through the side walls or ends of the building, so as to strike the under part of the roof and spray over the burning hay. Water is the prime requisite, and no amount of skill will make up for a shortage thereof.

At a fire of this type it is better to depend upon two good streams than several small ones. After all, it is merely a question of cooling down the burning materials as quickly as possible and this can be accomplished more readily with good solid streams than with ones of very small diameter where they would be apt to spray and become vaporized before doing their work.

GEORGE W. HEDDEN, DEPARTMENT HEAD OF BUFFALO, N. Y., DEAD

Passed Away in Local Hospital After Long Fight to Cure Weakened Heart—Member of Department for 44 Years

GEORGE W. HEDDEN, head of the Buffalo, N. Y., Fire Department for nine years, died at 11:19 p.m., February 24, in the Millard Fillmore Hospital after a long illness. He was sixty-six years old. Dr. Marcy, Fire Department Surgeon, said that death resulted from heart trouble as the result of two strains suffered several months ago.



The Late Comr. G. W. Hedden

He was born in Toronto, Ont., December 19, 1866. At that time his father, a Civil Engineer was supervising the construction of the first rolling mill in Toronto. The family moved to Buffalo in 1873, where he attended city schools, but his education wa limited as he became a wage earner early in life. When he was twenty-two years old he joined the Fire Department.

Chief Hedden was promoted to Lieutenant in 1893 and on January 1, 1904 became Captain. He was made a Battalion Chief on December 2, 1911. Advancement to temporary Assistant Chief came on October 10, 1918. This was made permanent on December 4 of that year. Chief Hedden became head of the department on April 2, 1924. In January, 1928, when the city charter was changed his title was changed to Commissioner. While Chief he was host to the annual convention of the International Association of Fire Chiefs (then I.A.F.E.) which was held in Buffalo in 1925. At the time of his death he was a Director of the Association.

His son, Dr. Hedden, said that Commissioner Hedden had had a premonition of his death for he made tentative arrangements for the funeral at the time he entered the hospital.

Chief Hedden married Miss Minnie Lee of Cincinnati on June 3, 1886. A son and a daughter were born. The first Mrs. Hedden died in 1890. On March 17, 1892, he married again. Three sons were born. The widow and children survive.

He was a member of the I.O.O.F., was a 32nd degree Mason, Buffalo Consistory, A.A.S.R., Ismailia Temple. A.A.N.O.M.S., Royal Order of Jesters and the J.E.W.S. Club.

Besides his intimate friends, Commissioner Hedden will be missed by 25,000 junior firemen, young boys of the city He said:

"There is no better way of teaching fire prevention than geting the youngsters in the city fire houses where the men can show them why it is important to be careful."

The body remained in state at the Buffalo Consistory where Masonic services were conducted. The funeral took place on February 27 and was accorded a uniformed escort of one hundred men. A corps of twelve firemen acted as guard of honor while the body remained in state. A police detail was also assigned. Interment was at Forest Lawn Cemetery.

W. P. Jayne Chief of Spokane

William Patrick Jayne was appointed Chief of the Spokane, Wash., Fire Department on February 1. He has a department record that dates back to 1901 when he became a member of the fire service.

He was appointed Lieutenant in July, 1911; Captain, December 13, 1915; Third Assistant Chief, April, 1929; First Assistant Chief in June 1931.

Chief Jayne received his primary education from the Sisters of the Holy Name and his secondary education from the Jesuit Fathers, at Gonzaga College, in Spokane.

Chief W. P. Jayne

R. I. Chiefs Dine

The annual banquet of the Fire Chiefs' Club of Rhode Island was held in the Narragansett Hotel, Providence, on February 16, at which time the new officers were installed by Senator William H. Vanderbilt who is also Chief of his private department at Oakland Farms, Portsmouth. Nearly four hundred persons attended.

Lieut. Gov. Robert E. Quinn extended the greetings of the state. Many other persons prominent in the state, and in towns of Rhode Island and Massachusetts were introduced by President Frank Charlesworth. Prizes and souvenirs were distributed. Eighteen persons furnished entertainment and music was supplied by the East Providence Fire Department orchestra.

The officers installed are Chief Frank Charlesworth, Providence, President; Chief A. J. Cote, Woonsocket, First Vice-President; Chief Elmer A. Capwell, Anthony, Second Vice-President; Ex-Chief A. Robert Black, N. Providence, Secretary; Ex-Chief Arthur J. Billinge, Norwood, Treasurer. The Board of Directors consists of Eugene Parentau, of West Warwick, Ex-Chief Charles E. Rounds and Deputy Chief John H. Fischer.

Newly Elected Chiefs

The following have been elected to head the Fire Departments in their respective municipalities:

Orient, S. D.—B. W. Pitman
Elmwood, Wis.—William Stephens
Marine City, Mich.—Walton Kelley
Beloit, Wis.—Elmer Fairbert
Etna, Cal.—Lawrence E. Buchner
Chews, N. J.—David Sink
Auburn, Wash.—William Ludwig
Mayville, N. Y.—Arthur Parkhurst
Mt. Bethel, N. J.—Philip J. Freehauf
Rainier, Ore.—William Joseph
Swedeland, Pa.—Walter Hertzog
Daretown, N. J.—Edward Paulding
York, N. Y.—William Ellis
Ft. Loramie, Ohio—August Gaier
Pomeroy, Ohio—Dana R. Roush
Monmouth Beach, N. J.—E. Van Brunt
Brawley, Cal.—H. L. Stewart
Mt. Ephraim, N. J.—Edward Booton.
Loleta, Cal.—J. M. Genzoli.
Pendleton, Ore.—C. O. Hanlon.
Brillion, Wis.—Arthur A. Radloff.
Wells, Minn.—John J. Hawkins.
Protivin, Ia.—Edward Lukes.
Sayre, Pa.—John Heck.
Madison, Ind.—Charles Hoffman.
Oak Harbor, Ohio—Wallace Bloom.
Cavalier, N. D.—R. A. Page.
Woodlynne, N. J.—Allen B. Carr.
Spring Lake Heights, N. J.—W. Ferretti.
Farmingdale, N. J.—F. W. Stanford.
Point Marion, Pa.—D. D. Titus.
Roscoe, Pa.—Joe Wehousie.
East Patterson, N. J.—Harold Osborn.
Brown's Mills, N. J.—J. G. Lemmon.
Berlin, N. Y.—Arthur J. Goodermote.
Grass Valley, Cal.—Arthur Barrick.
Brentwood, N. Y.—John J. Kopf
Cowlesville, N. Y.—Charles Bock
S. Williamsport, Pa.—Thomas W. Bewer
Little Silver, N. J.—Fred Zieglar
N. Arlington, N. J.—Walter Wiggins
Honey Grove, Tex.—McCleary Eversole
Belmond, Ia.—Dr. R. T. Coe
Hampton, Ia.—T. C. Jones
Ocean Gate, N. J.—Wallie Burnet
Algona, Ia.—Oscar Anderson
Rockwell City, Ia.—Ralph Fisher
Windber, Pa.—Frank Hoffer
Covina, Cal.—Frank Kendall
Watsonville, N. J.—John L. Hineman
Somerville, N. J. — T. Randolph Davenport
Dover, N. J.—Frank O'Neil
Grundy Center, Ia.—Arthur Hasbrouck
Hustisford, Wis.—Roland Radloff
Tipton, Ia.—R. A. Will
Grand Mound, Ia.—J. A. Koetzing

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the month of February, 1933. These figures, compiled from telegraphic reports are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending February 28	Loss in Thousands of Dollars
San Francisco, Cal.—California Food Palace	80
Franklin, Ind.—Plant of Franklin Desk Co. destroyed	25
Frasee, Minn.—Several business establishments destroyed	25
Shenandoah, Iowa—Business property damaged	25
Port Washington, N. Y.—Residence of Dr. A. C. Veatch damaged	25
Marshalltown, Iowa—Higgin Dept. store destroyed	45
Castleton, N. Y.—Odd Fellows' Temple damaged	65
Hull, Que.—Business and apartment property	30
Kittanning, Pa.—Magdovitz Clothing Co. store destroyed	35
Neosho, Wis.—Post office and several business bldgs.	40
Brendonwood, Ind.—Residence of Elmer H. Jose, Lawrence Drive	25
Hillaboro, Oregon—Commercial bldg., Main St.	80
Metropolis, Ill.—Whse. property of Robert Liggett Co.	300
Belfast, Me.—Masonic Temple block damaged	35
New Britain, Conn.—Business property owned by David Levine	65
Augusta, Me.—Federal Furniture Co. bldg., adj. property	75
Long Branch, N. J.—Rutking bldg. destroyed	50
Annville, Pa.—Dwelling of late A. S. Kreider, Hill Farms	250
Flora, Ind.—Monroe Township Consolidated School bldg.	80
Anita, Pa.—Business and residential property	25
Vineland, N. J.—Mattioli Bros. bakery destroyed	35
New London, Wis.—First National Bank bldg. damaged	30
Chester, Pa.—Offices of Sun Shipbuilding & Dry Dock Co.	25
Burlington, Vt.—Masonic Temple bldg. damaged	40
Niagara Falls, N. Y.—Several business bldgs., Buffalo Ave.	25
Alston, Mass.—Lincoln Chambers Apartment, damaged	35
Leicesteer, Mass.—Town Hall destroyed	25
Long Branch, N. J.—Dwelling of L. B. Tim, Westwood Ave.	150
Elizabeth, N. J.—Textile plant of Linden Novelty Co.	25
Ben Wheeler, Tex.—Hotel, store and garage, destroyed	35
Portland, Me.—Whse. of E. C. Jones & Co., Commercial Wharf	25
Seneca, Mo.—Three stores destroyed	65
Los Angeles, Cal.—Loreto Street Grammar School destroyed	30
Fowler, Cal.—Manley dept. store destroyed	25
Omaha, Neb.—Bldg. of Omaha Casket Co. destroyed	35
DeLake, Ore.—DeLake Beach hotel, destroyed	35
Fort Worth, Tex.—Whse. of Steve Sash & Door Co.	80
The Dalles, Ore.—Property of Union Pacific R. R.	350
Brewster, N. Y.—Home Market and Feinton's store	30
Barberton, Ohio—Business district damaged	200
Omaha, Neb.—Millard Hotel destroyed	200
Treverton, Pa.—Plant of Treverton Shirt Mfg. Co.	200
Memphis, Tenn.—Bldg. occupied by W. T. Grant & Co.	80
Paducah, Ky.—Mill and yards of Paducah Lumber & Mfg. Co.	70
Tarboro, N. C.—Property of Carolina-Virginia Tobacco Co.	70
Grenfill, Sask.—O. W. Walters store destroyed	50
Denver, Colo.—Factory of Heinz Roofing Tile Co.	35
Morristown, Minn.—Elevator and mill of Big Diamond Flour Co.	80
Rice Lake, Wis.—Jacobson bldg. damaged	30
Bellevue, Mich.—Methodist church destroyed	25
Chicago, Ill.—Grain elevator of N. Rosenbaum & Co.	1,500
Nashville, Tenn.—Store of Swords & Co., damaged	25
New Rochelle, N. Y.—Several business establishments	35
South Boston, Mass.—St. Eulalia's Catholic Church destroyed	80
Davenport, Iowa—Property of Ewert & Richter Express & Storage Co.	80
Redding, Conn.—Property of J. E. Sterrett at Sunset Hill	125
Dickson City, Pa.—Garage and apartment of Wm. Miller	25
Buena Vista, Ga.—Business property destroyed	45
Niles, Mich.—Lincoln Hotel and adj. property	45
Thief River Falls, Minn.—City Auditorium, adj. property	200
Capitola, Cal.—Twenty bldgs. in business district destroyed	100
San Francisco, Cal.—Lido Cafe on Columbus Avenue	25
Buffalo, N. Y.—Dept. store of Jahraus-Braun Co.	40
Stafford Springs, Conn.—Post office destroyed	80
Wallace, Idaho—Taylor bldg., Ryan Hotel and adj. property	80
Flushing, N. Y.—Apartment property at 36-14 165th St.	80
Roosevelt Field, N. Y.—Hangar G. and seven airplanes destroyed	400
Battle Creek, Mich.—Bldg. of DeNooyer Bros. destroyed	65
Danville, Ill.—Nelsonia Apts., Vermilion and Williams Sts.	75
Ardmore, Okla.—Hangar at Oakley airport destroyed	45
Roxana, Okla.—Four gasoline tanks of Shell Petroleum Corp.	45
Forsyth, Ga.—Residence of W. H. Newton, Macon Rd.	25
E. Palestine, Ohio—Logan bldg. damaged	40
Aberdeen, S. Dak.—Machine shops of K. O. Lee & Son destroyed	45
Black Earth, Wis.—Bldg. of Farmers Mercantile Assn.	45
San Francisco, Cal.—St. Paul's Episcopal Church	45
Dublin, Miss.—Business property destroyed	45
Paterson, N. J.—Property in business district	120
Brooklyn, N. Y.—Plant of Metropolitan Cabinet & Show Case Co.	40
Portland, Me.—Whse. of Burnham & Morrill Co., destroyed	45
Chicopee Falls, Mass.—Two bldgs. in downtown section	45
Muscatine, Iowa—Furniture dept.. of Glatstein stores	50
Joliet, Ill.—Whse. of Joliet Macaroni Co.	35
Paris, Ill.—City water works destroyed	65
Kentland, Ind.—Lee garage and 54 automobiles destroyed	35
Anniston, Ala.—Bldg. of Montgomery Ward & Co. destroyed	65
Lake City, Minn.—Three business buildings destroyed	25
Milwaukee, Wis.—Bldg. of J. Glasspiegel Fireworks Co.	45
Philadelphia, Pa.—Residence of Mrs. A. S. Brown damaged	65
Toledo, Ohio—Vita Temple Theatre destroyed	125
N. Wilkesboro, N. C.—Armory of Company A destroyed	35
Buffalo, N. Y.—Zimmerman Lumber plant damaged	125
Freehold, N. J.—Belmont Hotel damaged	45
Geneva, N. Y.—Service dept. of Associated Gas & Elec. Co.	80
Hewlett, N. Y.—Apartment property on Broadway	25
Scranton, Pa.—Garage and apartment bldg. damaged	35
Jonesville, Va.—Lee County Courthouse destroyed	80
Torrington, Conn.—Business property	100
Worthington, Pa.—Buffalo Creek Woolen Mills destroyed	125
Mount Ayr, Iowa—Bemont building destroyed	25
Portland, Me.—Whse. of Portland Fish Co. on Commercial Wharf	25
Warrenton, Ore.—Several business establishments destroyed	25
Phoenix, Ariz.—Main bldg. of Capitol school destroyed	25
Birmingham, Ala.—Store of Calder Furniture Co., adj. property	40
Rockaway Beach, N. Y.—Plant of J. R. Murray & Sons Ice Co.	150
Oswego, N. Y.—Apartment property at 45 West Sixth St.	25
Sydney, N. S.—J. Azar garage destroyed	100
Lake City, Wis.—Lombard and Wise bldgs. destroyed	30
Johnson City, N. Y.—Plant of Binghamton Flexible Shaft Co., 1 mi. west	50
Southbridge, Mass.—Robbins clothing store damaged	25
Sterling City, Tex.—Bailey dry good store, adj. property	25
Houston, Tex.—Plant of Temple Lumber Co.	80
Grand Rapids, Mich.—Business and apt. property of Dr. K. O. Stryker	45
E. Boston, Mass.—Columbus Hall destroyed	25
Laporte, Ind.—Factory of Leader Mfg. Co. destroyed	45
Cresskill, N. J.—Plant of Palliser Door & Sash Co. destroyed	25
N. Tonawanda, N. Y.—Gurewitch store and two adj. buildings	25
Cornwall, Ont.—Plant of Cornwall Paint Mfg. Co. destroyed	200
Lebanon, Ky.—Burley Tobacco whse. destroyed	30
Brielle, N. J.—Property of Mrs. M. C. Sweinert	50
Indianapolis, Ind.—Whse. of Central States Bridge Co.	30
Boonton, N. J.—Two bldgs. of Dawson Lumber Co. and property of Boonton Feed & Supply Co.	65
Ellsworth, Me.—Estey bldg., State St.	25
Lubec, Me.—Factory property of Booth Fishers Co.	40
Mauston, Wis.—Marachowsky store destroyed	50
Winston-Salem, N. C.—B. F. Huntley Furniture Co.	250
Buffalo, N. Y.—Three residences on West Avenue	25
Bakersville, N. C.—Taoecane flour mill destroyed	25
Glenwood, Ill.—Glenwood Manual Training School destroyed	80
Grove City, Pa.—Glenn business block damaged	25
New Buffalo, Mich.—Four bldgs. on Camp Tel Hai property, 1 mi. South	45
Albany, N. Y.—Whse. of Feeney & Sheehan Bldg. Co.	25
Conklin, N. Y.—Junk whse. of Levine Bros. destroyed	40
St. John, N. B.—Empire Hotel and adj. property	25
Detroit, Mich.—Plant of Louis Cigar & Candy Co. destroyed	50
Hoboken, N. J.—Whse. of P. Cardinale & Sons, adj. property	80
Minneapolis, Minn.—Radio station WDGY, Dr. G. W. Young, owner	40
Statesville, N. Y.—Plant of Statesville Furniture Co.	200
Lynchburg, Va.—Fairview Methodist Church damaged	35
Detroit, Mich.—Stock of M. Grossman Co. destroyed	125
E. Aurora, N. Y.—Lange's Village Inn, adj. property	50
Syracuse, N. Y.—Business property on S. State St. and W. Beldin Ave.	120
Wilkes Barre, Pa.—Monastery at Harvey's Lake	25
Mattson, Miss.—Commissary whse. and school building	25
Mullins, S. Car.—Plant of Huchan Tobacco Co. Inc.	65
Minden, La.—Business property destroyed	80
Turtle Creek, Pa.—Penn Avenue school bldg. destroyed	80
Ottawa, Ont.—Store of Dominion House Furnishing Co.	125

Seven Firemen Killed in Omaha Blaze

Seven firemen of the Omaha, Neb., Fire Department were killed and twenty-two persons were injured in a fire which swept the four-story brick Millard Hotel on February 9. The firemen, including a Captain, were caught when a wall collapsed.

The cause of the fire has not been determined although it caused damage of $250,000.

Fire-fighters were hampered by a sub-zero temperature. They had to chop through blocks of ice in order to gain

Ruins of the Hotel Where Seven Firemen Lost Their Lives

entrance into the building and recover the bodies. As firemen were working to locate the dead, a sign of the hotel still proclaimed the legend, "Fireproof." All of the forty-five guests of the hotel found their way to the street without injury.

I. A. F. C. Ready for Trip Reservations

Plans have been completed for the sixty-first annual convention of the International Association of Fire Chiefs which will include a cruise on the Great Lakes from Cleveland to Chicago, and a two-day visit to the World's Fair. The palatial S.S. Seandbee has been chartered for the convention trip. The trip will cost from $55 per person and up, and will include all expenses—boat fare, meals, and practically everything else. The itinerary follows:

Monday, August 21, leave Cleveland..... 3 p. m.
Steamer proceeds to Georgian Bay.
Tuesday, August 22, arrive Midland, Ont..... 3 p. m.
Opportunity for sightseeing and outdoor sports.
Leave Midland, Ont..... 8 p. m.
Wednesday, August 23, steamer continues through Lake Huron into Lake Michigan.
Thursday, August 24, arrive Chicago..... 7 a. m.
Friday, August 25, leave Chicago..... 6 p. m.
These two days will be spent in visiting the World's Fair. Special bus service will be provided. Lodging and meals on boat.
Saturday, August 26, arrive Mackinac Island..... 1 p. m.
Program of entertainment including motor boat races, Coast Guard exhibition and trotting races.
Leave Mackinac Island ..... 5 p. m.
Sunday, August 27, arrive Cleveland..... 6 p. m.

All business sessions of the convention will be held on the boat going to and coming back from Chicago.

Reduced railroad rates will prevail from all points to Cleveland and return. Special parties will be arranged from different points of the country to Cleveland, but complete details on these special trains or parties will be announced later. For those who plan to drive to Cleveland in their own automobile, adequate garage facilities will be made available near the boat pier at a nominal cost.

The Travel Department of the American Express Company will take care of all details of the trip. This arrangement was authorized by the Board of Directors of the I. A. F. C.

Reservations should be mailed to I. H. Case, Chairman of Convention Arrangements, International Association of Fire Chiefs, 24 W. 40th Street, New York, N. Y.

Ahearn, Noted N. Y. Deputy Chief, Dead

Thomas J. Ahearn, formerly Deputy Chief of the New York Fire Department and one of its outstanding heroes, died at his home in Flushing, Queens, following an apoplectic stroke, at the age of eighty-one. His men called him the "Little Deputy," because of his slight stature. He was but one-sixteenth inch over the minimum height requirement.

On April 3, 1894, while a Deputy Chief, he was overcome in an attempt to rescue a child from a burning building. He was found badly burned, his helmet almost completely destroyed. For thirteen months he was in a hospital as a result of these injuries and for six months of that period was irrational. His hearing was impaired.

On July 6, 1911, after thirty eight years of service, he was retired on full pay. Eleven days later he was appointed State Fire Marshal, and he held that office until its abolition during the regime of Governor Whitman.

He is survived by a son and daughter and a sister. He was a brother of the late John F. Ahearn, at one time President of the Borough of Manhattan and a leader of Tammany.

Mid-Hudson-Harlem Valley Chiefs Meet

The regular February meeting of the Mid-Hudson-Harlem Valley Fire Chiefs' Association was held at the Arlington, N. Y., firehouse on Saturday, February 4, with over seventy officers of fire companies in Putnam, Ulster, and Dutchess Counties in attendance.

The meeting was opened by Chief Chris Noll, of Poughkeepsie, who introduced President Dietz of The Arlington Fire Department, who welcomed the visitors. Chief Noll then inducted Chief George Cady, of Arlington, the new President of the Association, who stressed the need of the Association in its vicinity.

The speaker of the evening, George Ruff, Service Supervisor of the Central Hudson Gas and Electric Corporation, spoke of "The Connection of Public Utility Companies and the Various Fire Departments," followed by a discussion of electric hazards as related to firemen.

A supper followed, at which over one hundred and fifty officers and firemen were seated. Over seventy-five officers of fire companies have joined this association, while its scope has been broadened into Orange County by the joining of several officers of the Newburgh Fire Department. The next meeting of the Association will be held at Brewster on the first Saturday in April.

Groce Out as Fire Marshal

Capt. W. A. Groce, who has been Fire Marshal of Washington for sixteen years, ever since the office was created, has been retired as the result of a political upheaval.

Capt. W. A. Groce

He entered the fire service of Portland, Ore., in 1907 when he was nineteen. By competitive examination he worked his way up to Captain. With the inauguration of the fire marshal office in Portland and the appointment of Jay W. Stevens as Fire Marshal, Capt. Groce was selected Assistant Fire Marshal. A few years later Capt. Groce went with the Pacific Board with headquarters in Seattle.

In 1916 when the state of Washington started the office of Fire Marshal, Capt. Groce was selected as its head. He has held that position ever since.

Capt. Groce is a past member of the Board of Directors of the Pacific Coast Association of Fire Chiefs, and was elected President of the Washington State Association of Firemen at the last annual meeting. He is also Secretary of the Washington State Association of Fire Chiefs.

Politics Ousts Chief Taylor

Chief H. L. Taylor, head of the Rome, Ga., Fire Department since March 21, 1921, and a member of the fire service since November 11, 1910, was removed from office by a new set of city commissioners.

In commenting on this move Chief Taylor said, "I have given half of my life, perhaps the best part, to the service of the city. Just because of some political reason I have been kicked out. I fail to see what good will come to any department if this practice is followed through."

Blanchester, Ohio, has purchased a Seagrave-Reo community fire apparatus carrying a 400 g.p.m. pump, a 200-gallon booster tank and minor equipment. Similar type apparatus was purchased by Crestline, Ohio. Both deliveries will be made in March.

Ed. Wynn Popularizes March by Secretary Woodin

"The Fire Chief March," which William H. Woodin, the new Secretary of the U. S. Treasury wrote and dedicated to Ed. Wynn, the comedian "Fire Chief" of the Texas Oil Company's radio broadcast, was played throughout a recent parade in New York City which also featured various types of modern fire apparatus. The parade started from the Battery and went up Broadway and Fifth Avenue. It was embellished by a bevy of beautiful show girls who rode the fire engines and cheered the crowds on the sidewalks. The photograph shows "Chief" Ed. Wynn at the wheel of the apparatus.

Chief Shepard, Pittsfield, Mass., Retires

Chief William C. Shepard, of the Pittsfield, Mass., Fire Department, retired on pension February 4.

Chief W. C. Shepard

He joined the fire service as a call man in Pittsfield on June 7, 1877, and was made a permanent fireman on January 9, 1901. He became Captain on June 19, 1903, and was promoted to Deputy Chief on March 19, 1907. He was named Acting Chief of department on July 7, 1911, and on December 19, 1911, became Chief, serving continuously from that date until his retirement.

He is a past-President of the New England Association of Fire Chiefs. Chief Shepard is a member of the Fire Chiefs' Club of Massachusetts and of the International Association of Fire Chiefs.

At the same time that Chief Shepard retired, announcement was made of the retirement on pension of Deputy Chief W. J. Lloyd, of the Pittsfield Fire Department, who had a record of forty years' service.

HARRY BELKNAP.

Chief Hunt of Columbus Dead

Willis B. Hunt, who was appointed Chief of the Columbus, Ohio, Fire Department until a permanent Chief was selected through competitive examination, died February 12 in a local hospital following an abdominal operation. He was sixty-nine years old. He was to have taken the civil service examination on February 15. Chief Hunt joined the department in 1890, a year later was named Lieutenant and the following year Captain. In 1920 he was advanced to Battalion Chief and in 1930 to Assistant Chief. While a fireman he studied civil engineering at night for seven years through a correspondence school course.

When Chief Allen E. Nice resigned as head of the department, on December 31, Chief Hunt was provisionally appointed by the Safety Director to fill the vacancy.

Every city fireman not required for duty attended the funeral services on February 14.

Chief Hunt is survived by his widow, a son and a daughter.

H. G. Spaulding of Augusta, Me., Dead

Howard G. Spaulding, Augusta, Me., salesman for the A. H. Blanchard Company, Cambridge, Mass., became ill while driving his car in Portland, Me., on January 25. He died in a local hospital two days later.

He was a member of the New England Association of Fire Chiefs. A group of Chiefs headed by Ex-Chief Fortin of Lewiston, Me., represented the Maine State Association of Fire Chiefs at the funeral.

Mr. Spaulding is survived by his widow and two daughters and two sisters.

Chief Shipman Elected President

Chief Thomas H. Shipman, of the New London, Conn., Fire Department, was unanimously elected President of the New London County Fire Chiefs' Association at a meeting of that organization held in the quarters of Pioneer Hose Company, New London, on February 1. Other officers were selected as follows:

Vice-President, Henry Parks, Noank; Treasurer, Thomas B. Woodworth, Quaker Hill and Secretary, Herbert P. White, of Groton. Chief Shipman succeeds Chief Henry R. Taft, of Norwich, who was the Association's first President. The officers of the Association paid a splendid compliment to Chief Taft on his successful year.

Following the meeting an excellent turkey dinner was served and a fine program of entertainment brought the meeting to a close. Arrangements for the dinner were in charge of Chief White of the Pioneer Hose Company. Several new members were admitted to the Association.

Among the guests present were representatives of several fire apparatus and equipment manufacturers.

THOMAS F. MAGNER.

Ex-Chief Cribby of Somerville Dead

Ex-Chief Joseph A. Cribby, of the Somerville, Mass., Fire Department, who retired on pension January 1 last, died quietly in his sleep at his home in Somerville on February 17.

He was born in South Portland, Me., August 22, 1864, and was appointed a call fireman in Somerville on October 1, 1893. He was made a permanent fireman on February 12, 1896, and became a Lieutenant on Sept. 18, 1897. Mr. Cribby was promoted to the rank of Captain on Sept. 1, 1899. He became Second Assistant Chief on Nov. 6, 1911, and was named Deputy Chief on August 19, 1921. On January 10, 1930, he was appointed Chief of Department as successor to the late Sewall M. Rich.

Chief Cribby was a member of the Somerville Lodge of Masons, the Middlesex Sportsmen's Association, Somerville Firemen's Relief Association, Massachusetts State Firemen's Association, Fire Chiefs' Club of Massachusetts, New England Association of Fire Chiefs, and the International Association of Fire Chiefs. He is survived by his daughter, and by two brothers.

HARRY BELKNAP.

San Francisco will vote on April 4 on the question of placing the office of Fire Marshal directly under city control. Under a plan now being considered, the office will be self-supporting through fees for permits.

At the annual meeting of the Somerset County, N. J., Firemen's Association in Somerville the following officers were elected: President—P. Finley Wyckoff, Raritan. 1st Vice-President—Thomas Laing, Bound Brook. 2nd Vice-President—L. A. Bellis, of Somerville. Secretary—R. C. Stryker, South Bound Brook. Treasurer—Isaac N. Wyckoff, Somerville. Trustee—Thomas Murphy, Basking Ridge.

Fire Service Well Represented in Western Football

The fire service of the Pacific States is well represented in college football. For example, the team of the University of South California, last year's national champions, include among their first line players the following: Larry Stevens, son of Jay W. Stevens, Executive Secretary of the International Association of Fire Chiefs, and State Fire Marshal of California; George Lady, son of Chief George Lady, of Merced, Cal., and Bob McNeish, son of Engineer R. H. McNeish, of the Los Angeles Fire Department. Stanford University also has representation in the person of Wesley Stevens, son of Jay W. Stevens. In the above photograph, from left to right, are shown Coach Jones, of University of Southern California; Larry Stevens, Wesley Stevens and "Pop" Warner, former coach of Stanford and now coach at Temple University of Philadelphia. This picture was taken just before the University of Southern California—Stanford University game last fall, at Palo Alto, Cal.

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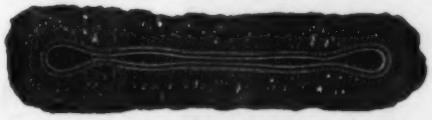

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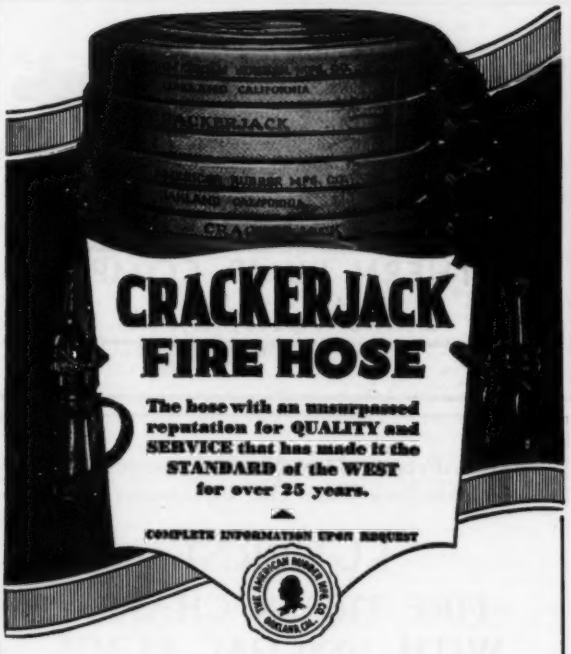
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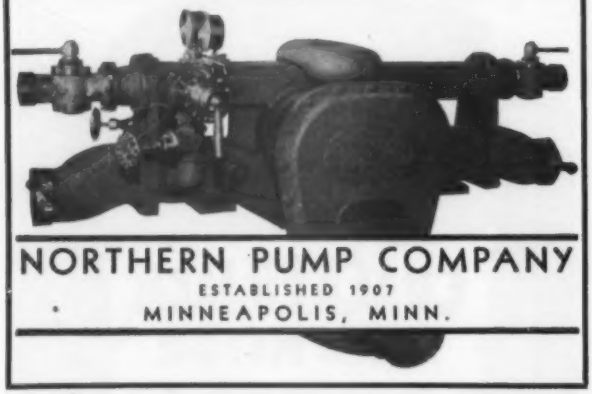

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BUFFALO FIRE APPLIANCE CORP.
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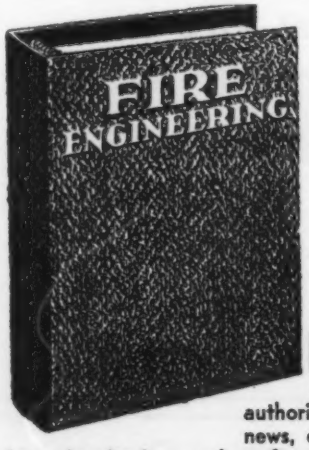

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PROPOSED IMPROVEMENTS

Grafton, Ill.—At spring election an issue of fire truck bonds to the amount of $2,500 will be voted upon, according to reports.

Toledo, Ohio—Survey of condition of equipment of fire dept. being made with a view to determining feasability of purchasing new apparatus.

New Orleans, La.—Ninth Ward Improvement & Protective Assn. requested council to erect new fire station at Robertson & Alva Sts.

Sacramento, Cal.—New fire station to be erected at Stockton Blvd. and 6th ave. in April.

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"FIRE-CRY" Automatic Alarm. No electric current, batteries or installations. No competition. Sells for one-fourth cost of usual alarm. Orders rolling in from Schools, Hospitals, Hotels, Homes, Farms, Stores, Shops, etc. Four sales daily produce $250.00 a month. We deliver and collect. A-1 concern. Write quick for appointment. FIRE-CRY Company, Dept. 1615, Dayton, Ohio.

Cambria, Cal.—Chamber of Commerce and local American Legion Post advocate organization of volunteer fire department.

Paterson, N. J.—Fire Chief Thomas L. Cole recommended purchase of new fire truck to be held for emergency purposes; that present type of hydrants in business section and South Paterson district be replaced with three-way type and that drill tower be erected.

Prospect, N. Y.—At meeting of village board it was voted to purchase additional fire apparatus.

Meadville, Penna.—Action may be taken in near future to invite bids for furnishing two trucks for fire department. G. W. Gill, Mayor.

Port Jervis, N. Y.—Council voted to call special election to vote on purchase of new truck for Fowler Hose Co.

Youngstown, Ohio—Mayor Mark E. Moore's annual report recommended construction of two fire stations.

CONVENTION DATES

March 13—PROVINCE OF QUEBEC POLICE AND FIRE CHIEFS' ASSOCIATION. Monthly Luncheon, Windsor Hotel, Montreal, Can. Secretary-Treasurer, Chief R. Harrington, McColl Frontenac Oil Refineries, Montreal.

March 15—FIRE CHIEFS' EMERGENCY PLAN. Regular Meeting, Washington Engine Company House, Portchester, N. Y., Secretary-Treasurer, Capt. Eugene Riviere, Fire Headquarters, Larchmont, N. Y.

March 16—NEW JERSEY MUNICIPAL SIGNAL ASSOCIATION. Next Meeting, Belleville, N. J. Recording Secretary, Frank Dolan, Jersey City, N. J.

April 1—MID-HUDSON-HARLEM VALLEY FIRE CHIEFS' ASSOCIATION. Next Meeting, Brewster, N. Y. Secretary, Chief Killmer, Fairview, N. Y.

April 14—BURLINGTON COUNTY FIREMEN'S PROTECTIVE AND COOPERATIVE ASSOCIATION. Next Meeting, Marlton, N. J. Secretary, Benjamin M. Haines, Moorestown, N. J.

May—DEL-MAR-VA VOLUNTEER FIREMEN'S ASSOCIATION. 4th Annual Convention, Easton, Md. (Exact date to be decided later.) Secretary, A. C. Bailey, Laurel, Del.

May 15-17—SOUTHWESTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Blackstone Hotel, Fort Worth, Tex. Secretary-Treasurer, J. E. Taplin, Blackwell, Okla.

May 23-26—IOWA FIREMEN'S SHORT COURSE. 9th Annual Course, Ames, Ia. Chief L. R. Morris, Ames, Ia.

May 24—IOWA FIRE CHIEFS' ASSOCIATION. 5th Annual Meeting, Ames, Ia. Secretary-Treasurer, Chief L. R. Morris, Ames.

May 29-June 1—NATIONAL FIRE PROTECTION ASSOCIATION. 37th Annual Meeting, Hotel Schroeder, Milwaukee, Wis. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

June—EASTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Harrisburg, Pa. (Exact dates to be decided later.) Secretary, Chief F. E. Soulé, Coatesville, Pa.

June—NORTH DAKOTA FIREMEN'S ASSOCIATION. 49th Annual Convention, Carrington, N. Dak. (Exact date to be decided later.) Secretary, H. L. Reade, Bismarck, N. D.

June—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Carbondale, Pa. Secretary Fred Zeiser, Shamokin, Pa.

June 5-7—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 11th Annual Convention and Fire College, Las Cruces, N. M. Secretary-Treasurer, T. A. Rosenwald, Albuquerque, N. M.

June 6—TEXAS STATE FIREMEN'S AND FIRE MARSHAL'S ASSOCIATION. 7th Annual Convention, Corpus Christi, Tex. Secretary-Treasurer, Olin Culberson, Edna, Tex.

June 8—NORTHERN INDIANA INDUSTRIAL AND VOLUNTEER FIREMEN'S ASSOCIATION. 28th Annual Convention, Bluffton, Ind. Secretary-Treasurer, G. W. Darr, Columbia City, Ind.

June 8-9—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. 6th Annual Convention, Savannah, Ga. Secretary-Treasurer, John L. Miller, Concord, N. C.

June 12-14—KANSAS STATE ASSOCIATION OF FIRE CHIEFS, STATE FIREMEN'S ASOCIATION AND FIRE SCHOOL. Respectively, 17th, and 46th Annual Convention and 5th Annual Fire School, Wichita, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan. Secretary, Firemen's Short Course, E. J. Stewart, Kansas Insp. Bureau, 701 Jackson St., Topeka, Kan. Also the Associations will conduct ten one-day regional fire schools in ten different towns—First one in Chanute, Kan., latter part of April.

June 13-15—FIRE CHIEFS' ASSOCIATION OF OHIO. 16th Annual Convention, Mansfield, Ohio. Secretary-Treasurer, Chief Philip J. Harty, Youngstown Sheet & Tube Company, Youngstown, Ohio.

June 14-16—MARYLAND STATE FIREMEN'S ASSOCIATION. 41st Annual Convention, Westminster, Md. Secretary, George R. Lindsay, Hagerstown, Md.

June 20-22—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 11th Annual Convention, Lewiston, Me. Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.

June 21—NORTHEASTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 60th Annual Covention, Hicksville, Ohio. President, Chief Darrell Williams, Sylvania, Ohio.

June 26-29—COLORADO STATE FIREMEN'S ASSOCIATION. 17th Annual Convention, Estes Park, Col. Secretary, Clinton Turnbull, 303 Jacobson Bldg., Denver, Col.

June 28—CENTRAL WESTERN FIREMEN'S ASSOCIATION. Annual Convention, Miamisburg, Ohio. Secretary, A. Hetzel, Miamisburg.

July—VERMONT STATE FIREMEN'S ASSOCIATION. 43rd Annual Convention, Poultney, Vt. (Exact date to be set later.) Secretary-Treasurer, Spencer Carr, Poultney, Vt.

July 1—TEMISKAMING FIREMEN'S ASSOCIATION. Tournament, New Liskeard, Ont., Can. Secretary-Treasurer, F. E. Thompson, New Liskeard, Ont.

July 18-19—MARITIME FIRE CHIEFS' ASSOCIATION. 19th Annual Convention, Digby, N. S., Can. Secretary-Treasurer, Captain Kenneth J. MacRae, Puggsley Bldg., St. John, N. B.

July 24-28—WEST VIRGINIA FIRE SERVICE EXTENSION SCHOOL. 3rd Extension School, University of West Virginia, Morgantown. Secretary, Chief C. J. Powell, Romney, W. Va.

July 24-28—WEST VIRGINIA FIRE CHIEFS' ASSOCIATION. 2nd Annual Meeting, University of West Virginia, Morgantown. Secretary, Chief C. J. Powell, Romney, W. Va.

Aug. 1-3—WISCONSIN PAID FIREMEN'S ASSOCIATION. 26th Annual Convention. Green Bay, Wis. Secretary-Treasurer, William H. Schultz, Sheboygan, Wis.

Aug. 8—STATE FIRE CHIEFS' ASSOCIATION OF VIRGINIA. Annual Convention, Harrisonburg, Va. Secretary-Treasurer, Chief E. H. Rouse, Orange, Va.

Aug. 8 to 11—VIRGINIA STATE FIREMEN'S ASSOCIATION. 47th Annual Convention, Harrisonburg, Va. Secretary, O. W. Dabney, Staunton, Va.

Aug. 15-18—FIREMEN'S ASSOCIATION OF THE STATE OF NEW YORK. 61st Annual Convention, Poughkeepsie, N. Y. Secretary, Fred A. Davis, Fort Edward, N. Y.

Aug. 29-31—DOMINION ASSOCIATION OF FIRE CHIEFS. 35th Annual Convention, Peterborough, Ont., Can. Secretary, Chief James Armstrong, Kingston, Ont.

Sept.—ARKANSAS STATE FIREMEN'S ASSOCIATION. 12th Annual Convention, Eureka Springs, Ark. (Exact date to be decided later.) Secretary-Treasurer, H. D. Compton, Little Rock, Ark.

Sept.—OKLAHOMA STATE FIREMEN'S ASSOCIATION. 39th Annual Convention, Oklahoma City, Okla. (Exact date to be decided later.) Secretary-Treasurer, Charles Slemp, 830 East 19th St., Oklahoma City.

Sept.—NORTHWEST FIRE SCHOOL. 6th Annual Fire School, exact date not set, but probably in September, as usual. University of Minnesota, Minneapolis. Address, Chief Frank W. Fuller, Brainerd, Minn.

Sept. 5-7—KENTUCKY STATE FIREMEN'S ASSOCIATION. 14th Annual Convention, Pikeville, Ky. Secretary, Capt. S. G. Render, 940 Starks Bldg., Louisville, Ky.

Sept. 12-14—WISCONSIN STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Wisconsin Rapids, Wis. Secretary, Chief Arthur J. Rahn, Two Rivers, Wis.

Sept. 18-19—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 9th Annual Convention, Kansas City, Mo. Secretary-Treasurer, M. J. Mulvoy, 405 City Hall Building, St. Louis, Mo.

Sept. 19-20—IOWA FIREMEN'S ASSOCIATION. 56th Annual Convention, Denison, Ia. Secretary, Paul A. Soener, Independence, Ia.

Sept. 21-22—DELAWARE VOLUNTEER FIREMEN'S ASSOCIATION. 13th Annual Convention, Laurel, Del. Secretary, Sam H. Carson, Dover, Del.

Oct. 2—TEMISKAMING FIREMEN'S ASSOCIATION. 10th Annual Convention, New Liskeard, Ont., Can. Secretary-Treasurer, F. E. Thompson, New Liskeard, Ont.

Oct. 3-5—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. 54th Annual Convention, Lock Haven, Pa. Secretary, Charles E. Clark, Wayne, Pa.

Oct. 17-19—ILLIOIS FIREMEN'S ASSOCIATION. 47th Annual Convention, Rockford, Ill. Secretary, Assist. Chief Roy W. Alsip, Fire Department, Champaign, Ill.

Pittsburgh Reduces Fire Losses

Chief Richard L. Smith of Pittsburgh, Pa., who is also President of the I. A. F. C., has succeeded in reducing the per capita fire losses in his city for 1932 to $1.10. The previous year, the per capita fire losses were less than all the major size cities with the exception of Milwaukee, and the 1932 figure is lower than 1931.

There were 4,515 fire alarms in Pittsburgh in 1932 of which 660 were false and 105 fire alarms for causes other than fires. There were 3,692 fires in the city of which 3,584 were confined to their points of origin. Only sixty-three spread in the same building where the blazes originated. March was the peak month for fires while October was the low point. The department estimates that $171,600 was saved through salvage operations.

Captain Walter M. Dawkins, formerly connected with the Woodhouse Manufacturing Company, has now gone into business for himself as manufacturers' agent for fire department equipment. He is located at 62 Washington Street, Portchester, N. Y.

FALSE ALARMS

YUMPING YIMINY

Olsen came to town as a company delegate. He tired of the dry excitement-free meetings and he planned to do a little cavorting by himself in the evening. He asked in the restaurant:

"Got any squirrel whisky?"

"No," said the man somewhat puzzled, "but I can slip you a little Old Crow."

"Ay don't want to fly," said Olsen, "aye just vant to yump around a little."

Even more than it needs a good five-cent cigar, this country needs a good nickel girl who has pity on her boy-friend's pocketbook and finds happiness in simple pleasures. To this statement by Dorothy Dix, one publication comments, "Ah, these simple pleasures."

CURE WORKED

As a result of the blaze in the chemical warehouse, he developed slight lung trouble. The doctor prescribed for him and told him to come back within a week. He came.

"Did you take my advice and sleep with all the windows open?" the doctor asked.

"I did, doctor," said the patient.

"That's fine," said the medical man. "And I suppose that you've pretty well lost that lung trouble."

"No, doctor," said the visitor sadly. "Only my best suit and my watch."

A polecat is much prettier than an Angora cat, but handsome is as handsome does.

IN SAME BOAT

This is one of those honest-to-goodness stories. For discretion's sake, no name is mentioned.

At three o'clock in the morning he was awakened by his little son. "Now what are you crying about?" he asked.

"Wanta drink," answered the youngster.

"So do I. Go to sleep."

Any man who got shaved in a barber college certainly knows how to take it on the chin.

AESOP FABLE

A flea and an elephant walked side by side over a little bridge. Said the flea to the elephant, after they had crossed it: "Boy, we sure did shake that thing."

A lot of men who marry in haste repent at meal time.

THE REASON

Even the ten per cent cut in pay couldn't hinder Tom from getting married. An intimate friend at the station visited his new apartment on his first off-day after the newlyweds moved into the new home. Everything was neat and orderly in the apartment. The visitor asked:

"Why did you take an apartment with such a tiny kitchenette?"

"Well, you're the first man I've told, so keep it quiet. It's so small I can't get in there to help my wife when she's doing the dishes."

Betty has made good matrimonial progress. She says she thinks she's on her last lap.

SLIGHTLY HANDICAPPED

The woman who lived next door to the new fire station, never became accustomed to her new neighbor. She guarded very zealously the use of her property and fought off any invasion of her rights, either real or imaginary. The men resented her hostility.

One day a visitor at the station interrupted the woman berating a firefighter for trespassing.

"That's her," said a fireman to the visitor.

"She's got an impediment in her speech, hasn't she?" he remarked.

The other said, "The only one I know of is that there are only twenty-four hours in a day."

A green apple a day buys the doctor's coupé.

MORE IMPORTANT

An old colored man who attempted to cross the street in front of approaching fire apparatus, met with a fatal accident. The city attorney, wishing to get all the facts, in case of a suit, called at the home of the deceased.

"Did old Sam Johnson live here?" he asked the weeping woman who opened the door.

"Yassuh," she replied between sobs.

"I want to see the remains."

With a new sense of importance the dusky widow drew herself erect and answered proudly:

"I'm de remains."

Then there was a young lady who had water on the knee, so the doctor told her to wear pumps.

TIME LIMIT

A meeting was held in the village hall to consider the question of purchase of apparatus. A salectman from the neighboring village where apparatus was recently purchased was invited to speak. After many moments the guest ended by saying:

"I am sorry if I have spoken a little too long. The fact is that I haven't a watch and I don't see a clock anywhere in the hall."

A member of the audience who had been very much bored, shouted:

"Well, mister, there's a calendar behind you!"

He wanted some recreation. He phoned her if she would go to see "Grand Hotel," with him. She immediately started packing her bag.

I AM DEEPLY SORRY, SIR, THAT THE DESIRED COLOR EFFECTS ARE LACKING. A NIGHT FIRE HAS MUCH GREATER POSSIBILITIES.
THE GROUPING AND THE POSES ARE PERFECT, MEN, BUT THE CURVE OF THAT STREAM'S A BIT AWKWARD!
IS HE CALLING US MOSES?
A FIRE AXE IS USED GRACEFULLY. DIGNITY ENHANCES SKILL. LEARN TO WORK ARTISTICALLY! THAT'S THE THING!

—Drawing by "Art" Espey

Art and Gentility Enter the Fire Department

A Board of Inquiry trying the Chief of a volunteer Fire Department on charges of discourtesy, ruled that firemen must conduct themselves in an artistic manner while fighting blazes. A local doctor complained that for the past eight years the Chief did not fight fires in a dignified or artistic manner nor was his language genteel. After an exhaustive inquiry, the Board ruled that "in the future, Chief - - - must use genteel language and be artistic and dignified—in keeping with the local spirit—while fighting fires."

What Will You Have?

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5 Aerial Trucks
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8 Alarm Systems, Municipal Telegraphic
9 Alarms, Thermostatic
10 Asbestos Clothing
11 Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars
14 Battery Zincs for Fire Alarm Batteries
15 Bells, Fire Alarm, Municipal
16 Body Equipments
17 Boxes, Gongs, Reels, Registers, Fire Alarm
18 Brakes, Air
19 Brake Linings
20 Brooms, Fire
21 Building Materials, Fire Retardant
22 Caps, Firemen's
23 Chains, Non-Skid, Fire Apparatus
24 Chassis for Fire Apparatus
25 Chemical Engines and Tanks
26 Chimney Fire Fuses and Compounds
27 City Service Trucks
28 Coats and Suits, Firemen's Quick Hitch
29 Combination Chemical and Hose Cars
30 Cutting and Welding Equipment, Blow Torch
31 Cutting and Welding Equipment, Electric
32 Deluge Sets
33 Door Openers, Fire Station, Automatic
34 Electric Light Plants
35 Extinguishers, Calcium Chloride
36 Extinguishers, Carbon Dioxide
37 Extinguishers, Soda-Acid
38 Extinguishers, Carbon Tetrachloride
39 Extinguishers, Foam
40 Extinguishers, Powder
41 Fire Boat Nozzle Equipment
42 Fire Department Supplies, General
43 Fire Exit Devices, Door Opening
44 Fire Alarm Posts
45 Fire Escapes, Portable
46 Fire Escapes, Rigid
47 First Aid Equipment
48 Flare Lights
49 Flashlights, Hand
50 Flood Lighting Equipment
51 Foam Generating Apparatus
52 Foam Liquid for Extinguishers
53 Gas Masks and Respirators
54 Gas and Smoke Helmets
55 Gas and Smoke Generators
56 Goggles, Firemen's
57 Helmets, Metal, etc.
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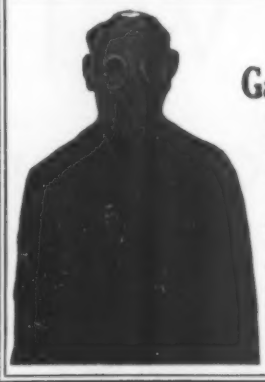

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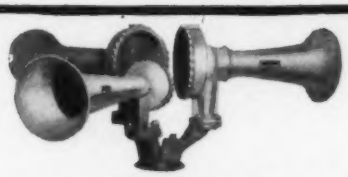

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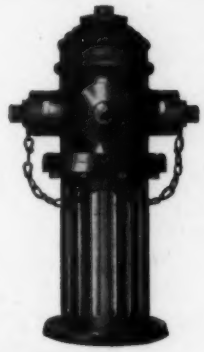

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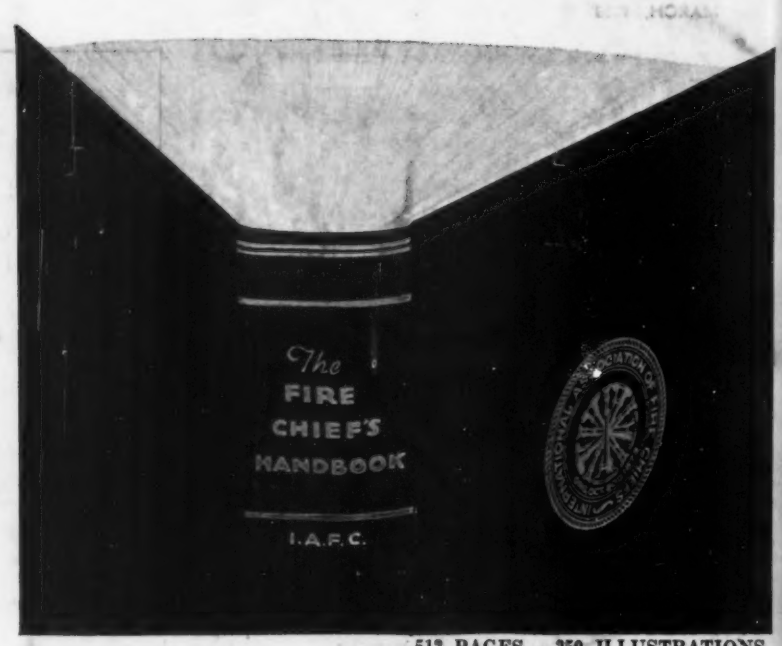

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